



1/18/23

SKAGIT COUNTY
PARKER BLDG
1700 COLLEGE WAY E
MT. VERNON, WA

PERMIT SET

01/18/2023

Revisions

Registration

Key Plan

Sheet Title

MECHANICAL SPECIFICATIONS

Scale:	1/8"=1'-0"
CEI Project No:	210094
Date:	01/18/2023
Designed:	BN
Drawn:	NH
Checked:	ON

Sheet Number

M0.3

DIVISION 23 - HEATING VENTILATION AND AIR CONDITIONING

HANGERS AND SUPPORTS FOR HVAC, PIPING AND EQUIPMENT

- HANGERS, BRACKETS, ANCHORS AND MISCELLANEOUS SUPPORTS SHALL BE PROVIDED FOR THE INSTALLATION OF ALL PIPING AND HVAC EQUIPMENT.
- SUPPORTING DEVICES SHALL BE ATTACHED TO CEILING, WALLS AND FLOORS BY BOLTS AND FASTENERS.
- PIPE HANGERS AND VERTICAL SUPPORT SPACING SHALL BE IN COMPLIANCE WITH THE 2018 INTERNATIONAL MECHANICAL CODE.
- MOUNTS, ANCHORS AND BRACING SHALL MEET 2018 I.B.C AND I.M.C. SEISMIC CODES AND MANUFACTURER'S SPECIFICATIONS.

VIBRATION AND SEISMIC CONTROLS FOR HVAC

THE SEISMIC BRACING AND ANCHORAGE OF DUCTWORK AND EQUIPMENT SHALL BE CONSTRUCTED WITH "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS", PUBLISHED BY SMACNA (MOST RECENT EDITION).

CONTROLS FOR HVAC

- A. RESPONSIBILITY
- THE CONTROLS ARE TO BE PROVIDED AS PART OF A COMPLETE HVAC SYSTEM.
- B. SPECIFICATIONS
- ALL CONTROLS SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES INCLUDING THE 2018 VERSIONS OF THE INTERNATIONAL CODES AND WASHINGTON STATE ENERGY CODE.
 - ALL CRITERIA NOT SPECIFIED HEREIN, BUT NECESSARY FOR COMPLETE SYSTEMS SHALL BE PROVIDED.
 - THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE CONTROLS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- C. HVAC + CONTROLS
- THE PLANS ARE SCHEMATIC BY NATURE AND DO NOT SHOW EVERY ASPECT OF THE COMPONENTS AND CONTROLS OF THE SYSTEMS. THE CONTRACTOR SHALL SUBMIT TO THE OWNER THEIR COMPONENTS AND ENOUGH SPECIFIC INFORMATION TO DEMONSTRATE HOW THE HVAC SYSTEM WILL BE CONTROLLED.
- D. EXECUTION
- THE MECHANICAL CONTRACTOR SHALL COORDINATE AND PROVIDE INTERFACING BETWEEN THE CONTROLS FURNISHED WITH INDIVIDUAL PIECES OF EQUIPMENT.

DUCTING SYSTEMS:

- RIGID DUCTWORK SHALL BE CONSTRUCTED, ERECTED, AND SEALED IN ACCORDANCE WITH THE 2018 INTERNATIONAL MECHANICAL CODE. (603)
- ALL RIGID HVAC DUCTWORK IS 2.0 INCH W.C. PRESSURE CLASSIFICATION (603.3)
- RIGID DUCTWORK SHALL BE GALVANIZED MEETING SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
- FLEXIBLE AIR DUCTWORK SHALL MEET SECTION 603.6 REQUIREMENTS.

REFRIGERANT PIPING SYSTEMS

- REFRIGERANT PIPING, VALVES AND ACCESSORIES SHALL BE PROVIDED IN COMPLIANCE WITH MANUFACTURER'S SYSTEM REQUIREMENTS.

MECHANICAL INSULATION

A. GENERAL

MANUFACTURERS: MANVILLE, OWENS-CORNING, CERTAINTEED, OR KNAUF. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

INSULATION THICKNESS: PER WSEC.

B. INSULATION MATERIALS

INDOOR PIPE INSULATION: FIBERGLASS PIPE INSULATION WITH ALL-SERVICE (VAPOR BARRIER) JACKET SHALL BE PROVIDED FOR ALL PIPING SYSTEMS, EXCEPT REFRIGERANT PIPING. FITTINGS SHALL BE MITERED SECTIONS OF INSULATION WITH THE SAME THICKNESS AS ADJACENT PIPE INSULATION WITH FACTORY-PREMOLDED, ONE-PIECE, UL LISTED (25/50) PVC FITTING COVERS. INSTALLATION MUST REFLECT CAREFUL WORKMANSHIP, AND BE NEAT IN APPEARANCE. VAPOR BARRIER SHALL BE SEALED AT ALL JOINTS ON COLD PIPING.

OUTDOOR PIPE INSULATION: INSULATION AND FITTINGS SAME AS SPECIFIED FOR INDOOR PIPE INSULATION. PROVIDE METAL JACKETS OF 0.016" ALUMINUM WITH INTEGRAL VAPOR RETARDER, SELF-SEALING, WATERTIGHT METAL BANDS FOR BUTT JOINTS. SEAL JOINTS WITH ALUMINUM PIGMENTED VAPOR RETARDER MASTIC, FOSTER 60-65, OR APPROVED EQUIVALENT.

ROOF DRAIN BODY INSULATION: FLEXIBLE FIBERGLASS BLANKET CONFORMING TO ASTM C 553, TYPE I, AND NOMINAL DENSITY NOT LESS THAN 1 LB. PER CUBIC FOOT, COVERED WITH 8-OUNCE CANVAS AND VAPOR RETARDER CEMENT.

REFRIGERANT PIPING INSULATION: 3/4" THICK IMCOA "IMCOLOCK" OR "IMCOSHIELD" INSULATION ON ALL REFRIGERATION GAS PIPING, AND ALL OUTDOOR REFRIGERANT LIQUID PIPING. NOT FOR USE ON OTHER PIPING SYSTEMS. PROVIDE METAL JACKETS OF 0.016" ALUMINUM ON OUTDOOR INSULATION.

DUCT AND PLENUM INSULATION: FIBERGLASS, 0.75-POUND DENSITY, FLEXIBLE DUCT INSULATION WITH KRAFT VAPOR BARRIER. VAPOR BARRIER SHALL BE SEALED AT ALL JOINTS AND ACCESS DOORS, ETC. IN GENERAL, INSTALLATION MUST REFLECT CAREFUL WORKMANSHIP, NEAT IN APPEARANCE.

2018 WASHINGTON STATE ENERGY CODE (WSEC) NOTES:

HVAC NOTES BELOW APPLY TO THE HVAC SYSTEMS SERVING THE AREAS WORK IS SHOWN, OTHER BUILDING SPACE ARE NOT INCLUDED IN THIS PROJECT SCOPE OF WORK

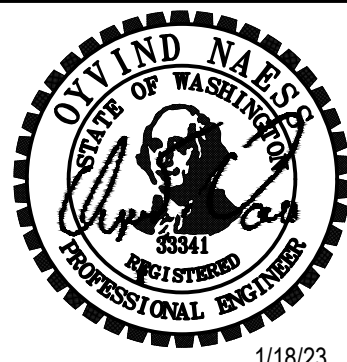
EQUIPMENT SIZING, PERFORMANCE, & TYPE:

- ALL MOTORS SIZED FROM 1/12 HP TO 1 HP SHALL BE ELECTRONICALLY COMMUTED (EC) MOTORS OR SHALL HAVE A MINIMUM EFFICIENCY OF 70 PERCENT (IN ACCORDANCE WITH DOE 10 CFR 431). MOTORS SHALL ALSO BE EQUIPPED WITH MEANS TO ADJUST MOTOR SPEED PER 2018 WSEC C405.8.
- IN ACCORDANCE WITH C405.8 OF THE 2018 WSEC ALL ELECTRIC MOTORS SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C405.8(1) THROUGH C405.8(4)
- FAN MOTORS SHALL BE THE SMALLEST AVAILABLE MOTOR SIZE GREATER THAN FAN BHP UNLESS OTHERWISE NOTED PER 2018 WSEC C403.8.2.
- ALL MOTORS SHALL BE ENERGY EFFICIENT MOTORS MEETING NEMA STANDARD MG-1 EXCEPT THOSE INCLUDED IN PACKAGED EQUIPMENT WITH EFFICIENCY RATED AS A WHOLE UNIT.
- HEATING AND COOLING LOADS HAVE BEEN PERFORMED PER ASHRAE STANDARDS.
- HVAC EQUIPMENT SIZED NO LARGER THAN THE NEXT LARGEST UNIT AVAILABLE ABOVE THE CALCULATED HEATING/COOLING LOADS PER 2018 WSEC C403.3.1.
- CONTROLS TO USE A 5°F MINIMUM DEADBAND BETWEEN HEATING AND COOLING PER 2018 WSEC C403.4.1.2.
- AUTOMATIC SETBACK/SHUTOFF: PROVIDE WITH DDC CONTROL SYSTEM AS PER 2018 WSEC C403.4.2.2.
- AUTOMATIC START AND STOP CONTROLS: PROVIDE WITH AUTOMATIC START AND STOP CONTROLS AS PER 2018 WSEC C403.4.2.3.
- WHERE LOCATED WITHIN UNCONDITIONED SPACE AND PLENUMS ALL SUPPLY AND RETURN DUCTWORK SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION. WHERE SUPPLY AND RETURN DUCTWORK IS LOCATED OUTSIDE OF A BUILDING DUCT IN CLIMATE ZONE 4 SHALL BE INSULATED TO A MINIMUM OF R-8, AND DUCT LOCATED IN CLIMATE ZONE 5 SHALL BE INSULATED TO A MINIMUM OF R-12.
- SUPPLY DUCT WHICH CONVEYS SUPPLY AIR AT TEMPERATURES LESS THAN 55 DEG F OR GREATER THAN 105 DEG F, WHEN LOCATED IN CONDITIONED SPACE, SHALL BE INSULATED WITH A MINIMUM INSULATION R-VALUE IN ACCORDANCE WITH TABLE C403.10.1.2.
- RETURN OR EXHAUST DUCTWORK THAT IS LOCATED WITHIN A CONDITIONED SPACE AND CONVEYS RETURN OR EXHAUST AIR DOWNSTREAM OF AN ENERGY RECOVERY DEVICE SHALL BE INSULATED WITH A MINIMUM R-VALUE IN ACCORDANCE WITH TABLE C403.10.1.2
- DUCTS CONVEYING OUTSIDE AIR: PER 2018 WSEC SECTION C403.10.1.1 ALL DUCTS CONVEYING OUTSIDE AIR FROM THE EXTERIOR OF THE BUILDING TO THE MECHANICAL SYSTEM SHALL MEET ALL AIR LEAKAGE AND BUILDING ENVELOPE INSULATION REQUIREMENTS AS NOTED IN SECTION C402 OF THE 2018 WSEC. AT A MINIMUM, DUCTS SHALL BE INSULATED TO VALUES INDICATED IN TABLE C403.10.1.1 OF 2018 WSEC.
- OUTSIDE AIR DUCT INSULATION SHALL MATCH PENETRATED BUILDING ENVELOPE INSULATION VALUES UNLESS SERVING INDIVIDUAL SUPPLY AIR UNITS WITH LESS THAN 2,800 CFM OF TOTAL SUPPLY AIR CAPACITY, PROVIDED THESE ARE INSULATED TO MINIMUM INSULATION VALUES INDICATED IN TABLE C403.10.1.1.
- PROVIDE HIGH PRESSURE DUCT LEAK TEST AS SPECIFIED AND REQUIRED PER 2018 WSEC C403.10.2.3.
- AUTOMATIC (MOTORIZED, FAIL CLOSED) DAMPERS AT OUTSIDE AIR INTAKES, EXHAUST OUTLETS, AND RELIEF OUTLETS: DAMPERS TO COMPLY WITH 2018 WSEC C403.7.8.3. DAMPER LEAKAGE RATES SHALL NOT EXCEED 4 CFM / SQ.FT. AT 1.0" W.G. FOR MOTORIZED DAMPERS OR 20 CFM / SQ.FT. AT 1.0" W.G. FOR NONMOTORIZED DAMPERS, EXCEPT NONMOTORIZED DAMPERS SMALLER THAN 24" IN EITHER DIMENSION WHERE THE MAXIMUM ALLOWABLE LEAKAGE RATE IS 40 CFM / SQ.FT.
- ENERGY METERING: METERS ARE PROVIDED FOR ENERGY SOURCES AS PER 2018 WSEC C409 INCLUDING 409.3.1 FOR ALL HVAC EQUIPMENT WITH THE EXCEPTION OF ENERGY SERVING PROCESS LOADS, SERVICE WATER HEATING OR OTHER MISCELLANEOUS LOADS PER C409.3
- ALL HVAC EQUIPMENT SHALL MEET MINIMUM EFFICIENCY REQUIREMENTS INDICATED IN TABLES C403.3.2(1) THROUGH C403.3.2(12). WHERE MULTIPLE RATING REQUIREMENTS EXIST, THE EQUIPMENT SHALL SATISFY ALL STATED REQUIREMENTS.

DIFFUSER AND GRILLE SCHEDULE																											
TAG	TYPE	BASIS OF DESIGN	REMARKS																								
S-1	SUPPLY DIFFUSER	PRICE SCDA	CEILING MOUNT																								
R-1	RETURN GRILLE	PRICE 630	CEILING MOUNT																								
BRANCH DUCT SIZING: <table><tr><th>CONNECTION SIZE:</th><th>BRANCH DUCT SIZE:</th><th>CFM RANGE:</th></tr><tr><td>4x4</td><td>4"</td><td>0-30</td></tr><tr><td>6x6</td><td>6"</td><td>30-80</td></tr><tr><td>8x8</td><td>8"</td><td>80-190</td></tr><tr><td>10x10</td><td>10"</td><td>190-360</td></tr><tr><td>12x12</td><td>12"</td><td>360-580</td></tr><tr><td>14x14</td><td>14"</td><td>580-900</td></tr><tr><td>16x16</td><td>16"</td><td>900-1300</td></tr></table>				CONNECTION SIZE:	BRANCH DUCT SIZE:	CFM RANGE:	4x4	4"	0-30	6x6	6"	30-80	8x8	8"	80-190	10x10	10"	190-360	12x12	12"	360-580	14x14	14"	580-900	16x16	16"	900-1300
CONNECTION SIZE:	BRANCH DUCT SIZE:	CFM RANGE:																									
4x4	4"	0-30																									
6x6	6"	30-80																									
8x8	8"	80-190																									
10x10	10"	190-360																									
12x12	12"	360-580																									
14x14	14"	580-900																									
16x16	16"	900-1300																									

VARIABLE REFRIGERANT VOLUME – ZONE HEAT RECOVERY DEVICE SCHEDULE									
TAG	BASIS OF DESIGN (MITSUBISHI)	CONDENSING UNIT SERVED	VOLTAGE – PHASE	MAX OVERCURRENT PROTECTION (MOP)	TYPE (DOUBLE / MAIN / DUB)	NUMBER OF PORTS	CONNECTED CAPACITY (MBH)	ZONE SERVED	REMARKS
BS-1	CMB-P1016NU-JA1	CU-1	208 / 1	15	MAIN	16	292	FIRST FLOOR	1
NOTES:									
1. STANDARD LIMITED WARRANTY: 10-YEAR WARRANTY ON ALL PARTS.									

ELECTRIC DUCT HEATER SCHEDULE														
TAG	LOCATION	SYSTEM SERVED	CFM	EAT F	LAT F	HEATER kW	VOLTS / PHASE	FLA	DIM WxH	CONTROL	STAGES	BASIS OF DESIGN	OPER WT. (LBS.)	REMARKS
DH-1	SUSPENDED	ERV-1	805	56	65	2.5	208 / 3	7	14x14	DUCT T-STAT	SCR	GREENHECK IDHE	30	1-6
DH-2	SUSPENDED	ERV-2	710	56	65	2.5	208 / 3	7	14x14	DUCT T-STAT	SCR	GREENHECK IDHE	30	1-6
NOTES: 1. PROVIDE AUTOMATIC LIMIT SWITCH FOR PRIMARY OVERTEMPERATURE PROTECTION. 2. PROVIDE MANUAL RESET LIMIT SWITCH FOR SECONDARY OVERTEMPERATURE PROECTION. 3. PROVIDE NON-ADJUSTABLE AIRFLOW SWITCH. 4. DISCONNECT BY ELEC CONTRACTOR. 5. COORDINATE LH OR RH ORIENTATION WITH MECHANICAL CONTRACTOR PRIOR TO ORDERING. 6. PROVIDE DUCT THERMOSTAT FOR ON/OFF CONTROL.														



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Key Plan

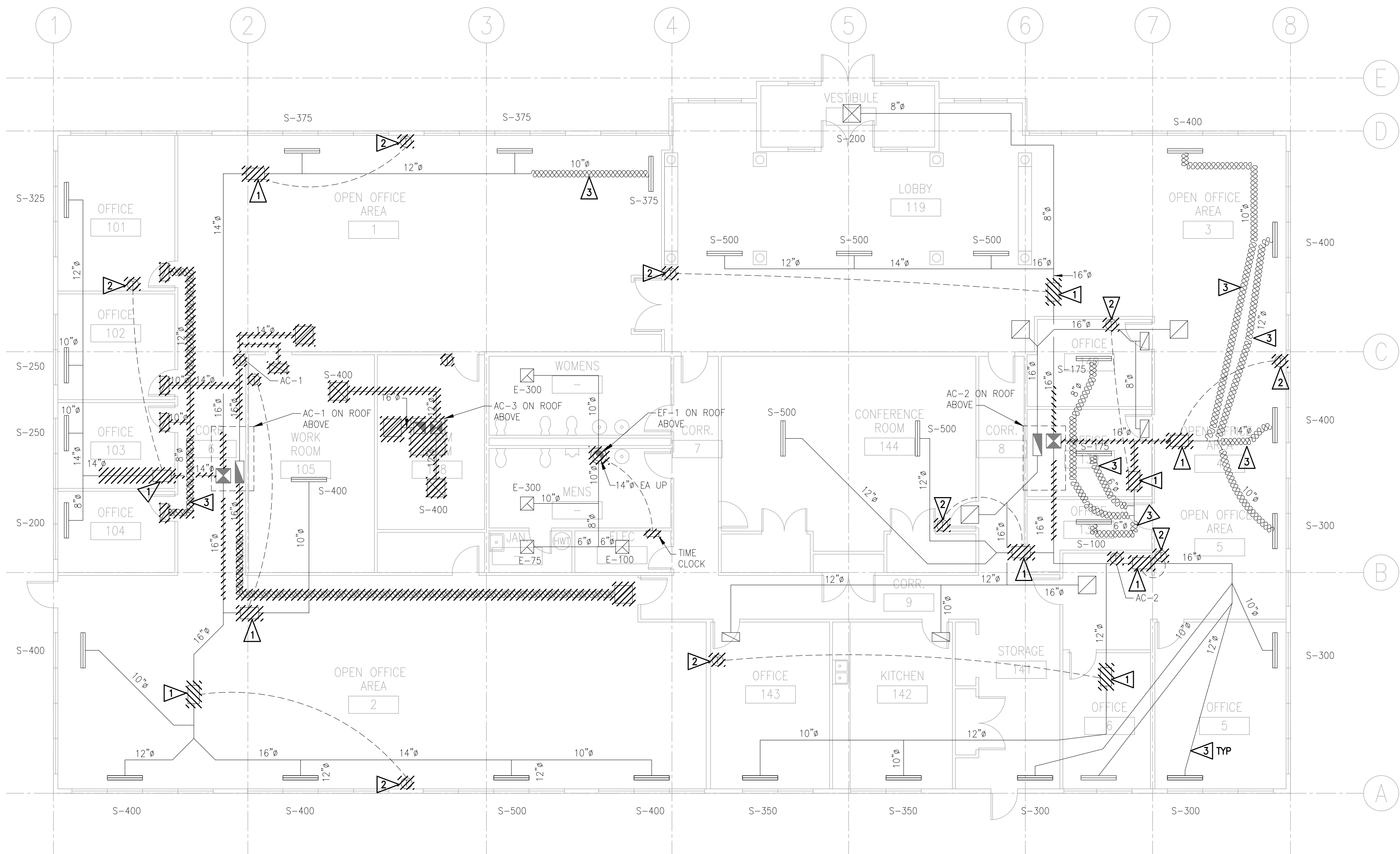
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FIRST FLOOR HVAC DEMO PLAN

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CEI Project No: 210094
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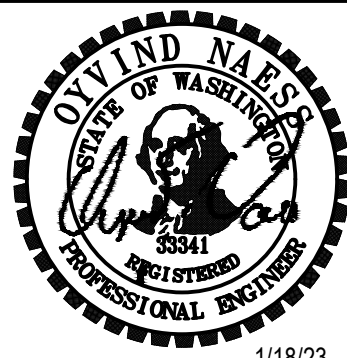
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FIRST FLOOR HVAC DEMO PLAN
SCALE: 1/8"=1'-0"





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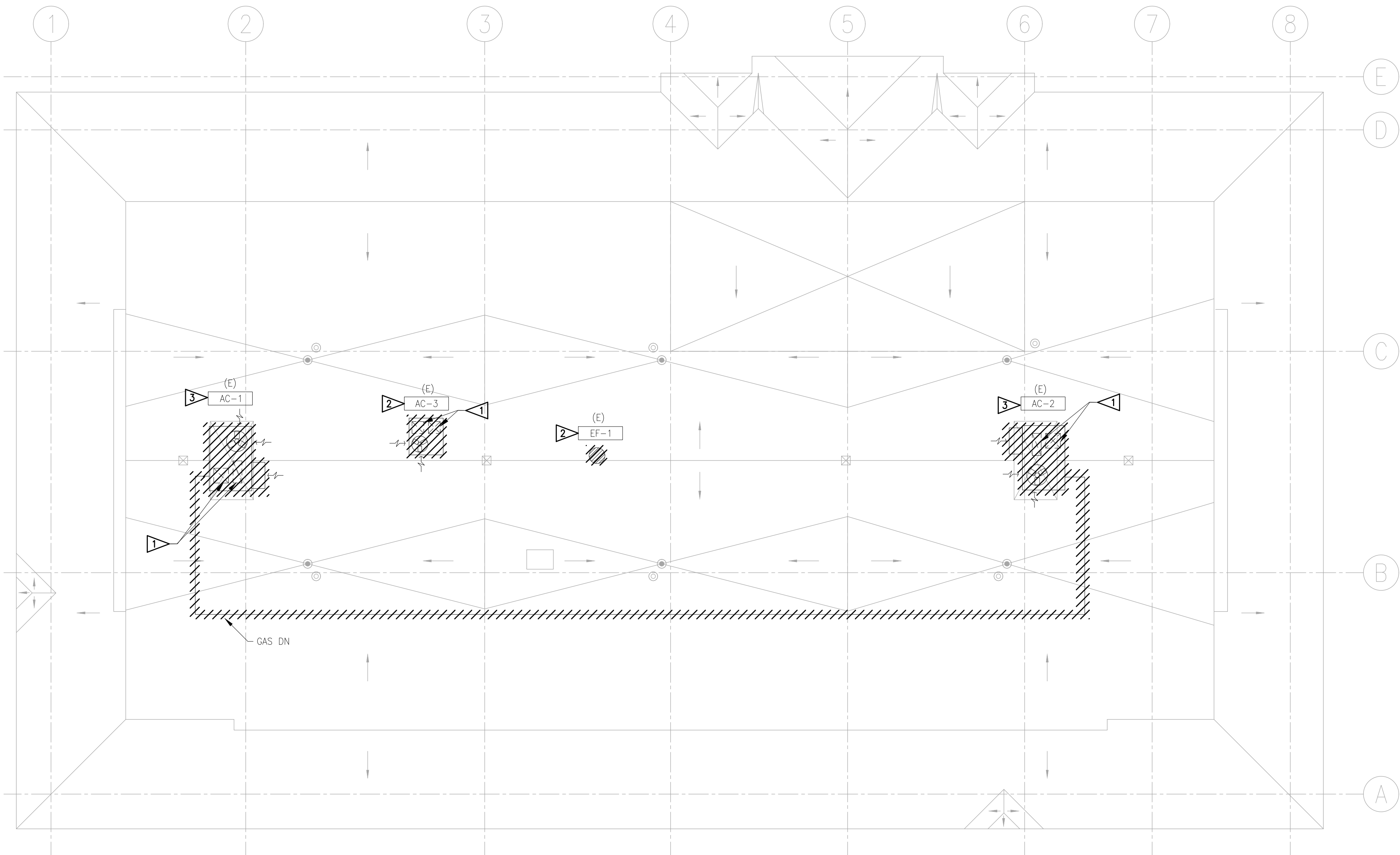
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ROOF
HVAC
DEMO PLAN

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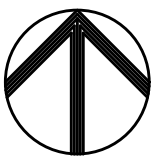
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ROOF HVAC DEMO PLAN

SCALE: 1/8"=1'-0"





4/24/23

SKAGIT COUNTY
PARKER BLDG
1700 COLLEGE WAY E
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04/24/2023

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Sheet Title

FIRST FLOOR HVAC PLAN NEW PLAN

Scale: 1/8"=1'-0"
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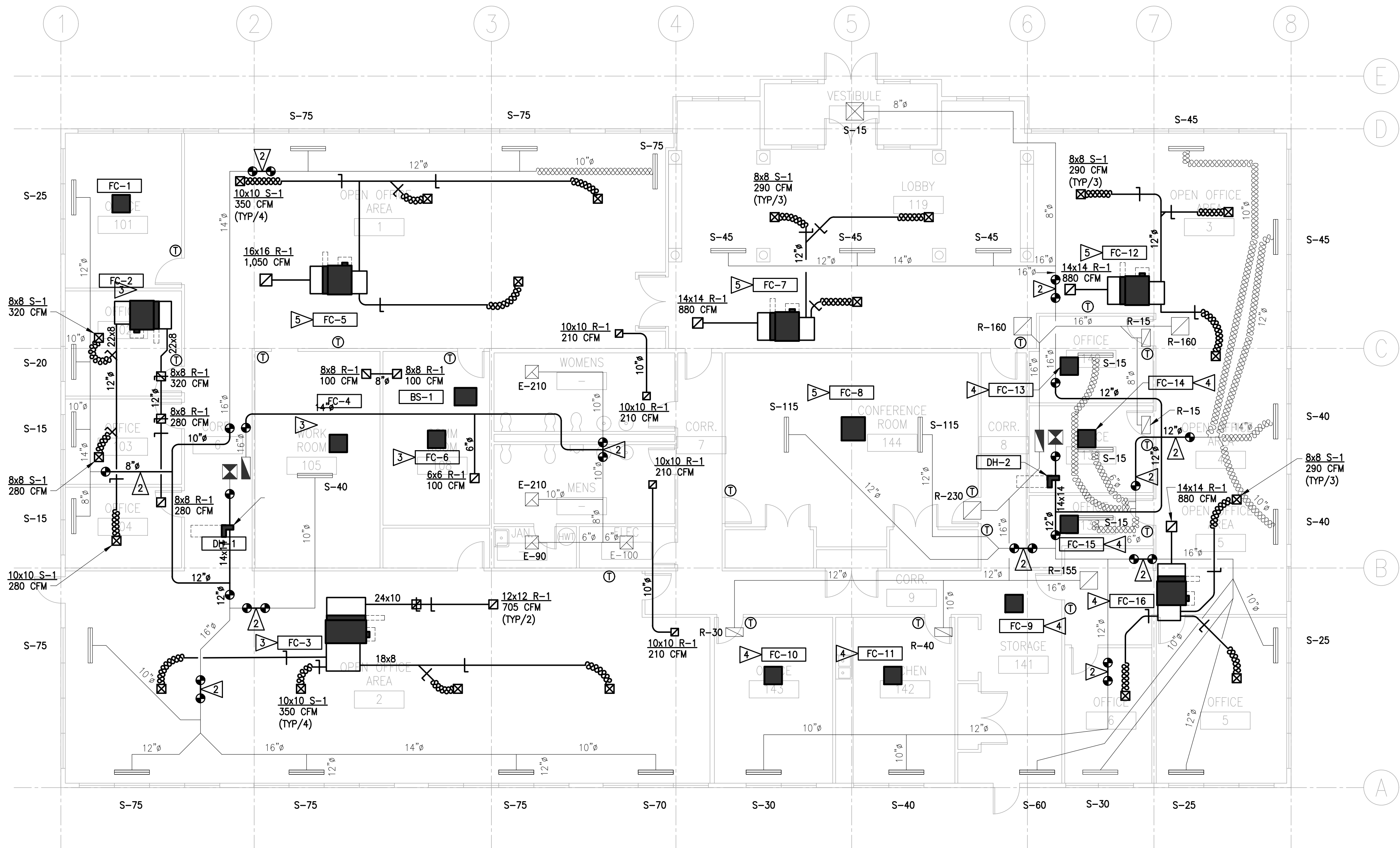
M2.0

SHEET NOTES

- 1 PROVIDE SUPPLY/RETURN PLENUM MATCHING INLET/OUTLET DIMENSIONS, PROVIDE 1" SOUND LINING.
- 2 PROVIDE NEW DUCTWORK TO CONNECT EXISTING DUCTWORK.
- 3 PROVIDE CONDENSATE PIPING TO INDIRECT DRAIN RECEPTOR UNDER LAVATORY IN MEN'S RESTROOM PER DETAILS 1&2/M3.0.
- 4 PROVIDE CONDENSATE PIPING TO INDIRECT DRAIN RECEPTOR UNDER SINK IN KITCHEN PER DETAILS 1&2/M3.0.
- 5 PROVIDE CONDENSATE PIPING TO INDIRECT DRAIN RECEPTOR UNDER SINK IN WOMEN'S RESTROOM PER DETAILS 1&2/M3.0.

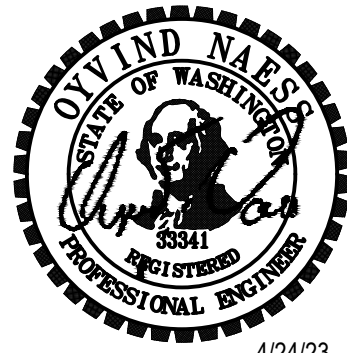
REFRIGERANT PIPING NOTES:

1. DESIGN INTENT IS ALL REFRIGERANT PIPING IS CONCEALED AND ROUTED IN WALLS, FLOOR/CEILING, AND ROOF/CEILING ASSEMBLIES WITHOUT THE USE OF DROPPED SOFFITS.
2. CONTRACTOR IS RESPONSIBLE FOR FINAL ROUTING OF PIPING PER SELECTED SPLIT SYSTEM MANUFACTURER INSTALLATION REQUIREMENTS. THIS INCLUDES VERIFYING THE MAXIMUM PERMISSIBLE LENGTH OF REFRIGERANT PIPING PER MANUFACTURER INSTALLATION REQUIREMENTS.
3. REFRIGERANT PIPING ROUTING TO COMPLY WITH WASHINGTON STATE MECHANICAL CODE REQUIREMENTS.
4. ALL PENETRATIONS OF RATED WALLS, FLOOR/CEILING, AND ROOF/CEILING ASSEMBLIES TO BE PROTECTED PER WASHINGTON STATE BUILDING CODE REQUIREMENTS.
5. ALL HOLES AND NOTCHES IN STRUCTURAL WOOD MEMBERS TO COMPLY WITH STRUCTURAL REQUIREMENTS AND WASHINGTON STATE BUILDING CODE REQUIREMENTS FOR OPENING SIZE AND LOCATION BASED ON SIZE OF MEMBER PENETRATED. NOTE THERE ARE DIFFERENT OPENING REQUIREMENTS FOR BEARING WALLS, NON-BEARING WALLS, STRUCTURAL JOISTS, AND BEAMS. SEE STRUCTURAL DRAWINGS FOR DETAILS.
6. HOLE, NOTCH, OR OPENING SIZES ARE REQUIRED TO BE OF SUFFICIENT SIZE TO ACCOMMODATE PIPING AND INSULATION.
7. PIPING TO BE ROUTED TO MINIMIZE PIPING ON THE ROOF AND MINIMIZE HORIZONTAL PIPING THROUGH A RESIDENTIAL UNIT NOT SERVED BY THE ASSOCIATED SPLIT SYSTEM.
8. CONTRACTOR RESPONSIBLE FOR FINAL DETAILING OF FLASHING AND SEALING OF REFRIGERANT PIPING PENETRATION OF ROOF ASSEMBLY.



FIRST FLOOR HVAC NEW PLAN
SCALE: 1/8"=1'-0"





4/24/23

SKAGIT COUNTY
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04/24/2023

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ROOF HVAC NEW PLAN

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M2.1

GENERAL NOTE

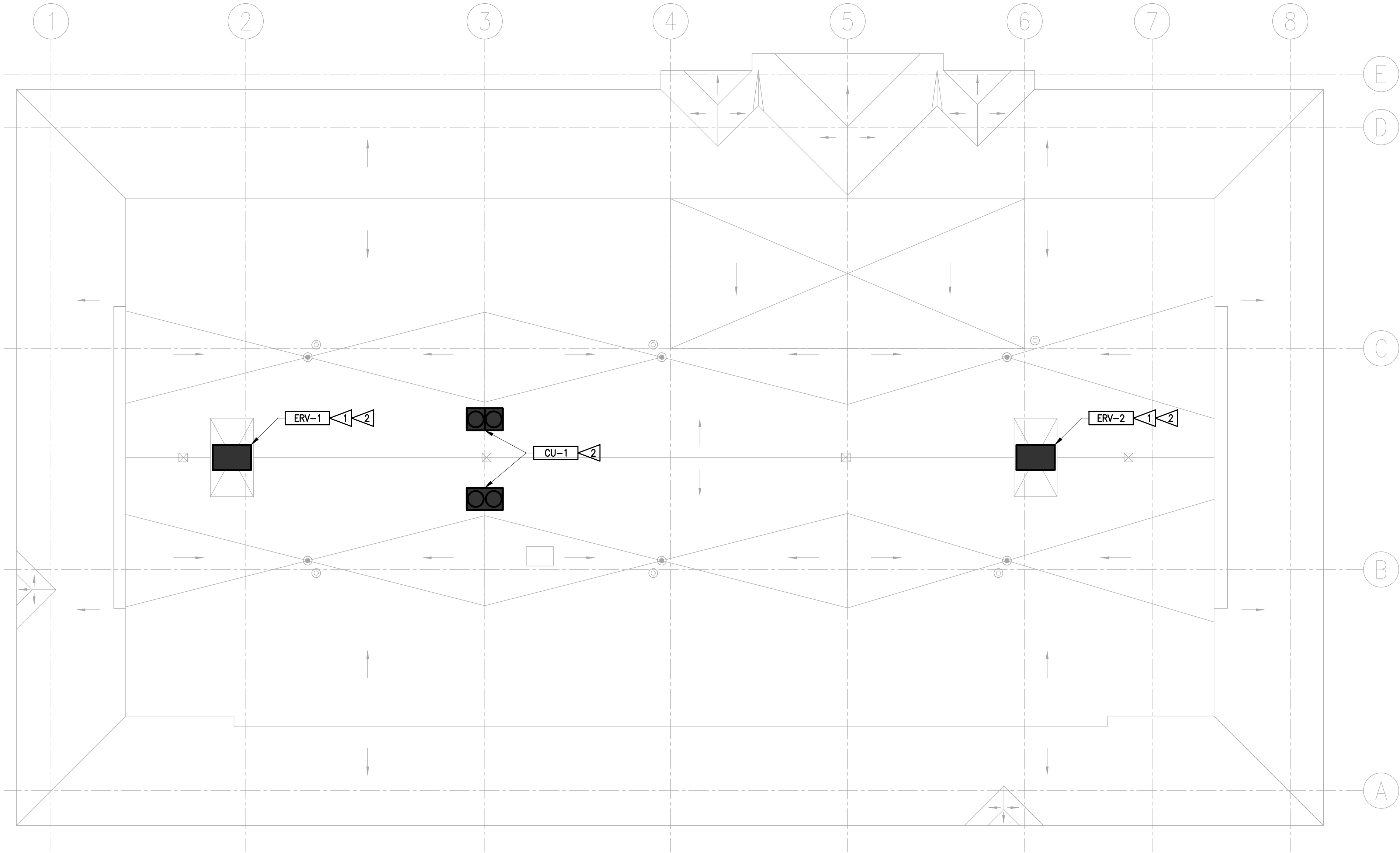
1. OUTSIDE AIR INTAKE OPENINGS SHALL BE LOCATED A MIN. 10' SEPARATION FROM EXHAUST AIR OUTLETS, LOT LINES, VENTS, STREETS, ALLEYS, PARKING LOTS, AND LOADING DOCKS.

SHEET NOTES

- 1 PROVIDE CUSTOM CURB TO ATTACH TO EXISTING CURB AND ADJUST ERV INLET/OUTLET OPENINGS TO CONNECT TO EXISTING SUPPLY/RETURN DUCT BELOW.
- 2 REFER TO STRUCTURAL DRAWINGS FOR ROOF ATTACHMENT.

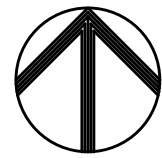
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3. REFRIGERANT PIPING ROUTING TO COMPLY WITH WASHINGTON STATE MECHANICAL CODE REQUIREMENTS.
4. ALL PENETRATIONS OF RATED WALLS, FLOOR/CEILING, AND ROOF/CEILING ASSEMBLIES TO BE PROTECTED PER WASHINGTON STATE BUILDING CODE REQUIREMENTS.
5. ALL HOLES AND NOTCHES IN STRUCTURAL WOOD MEMBERS TO COMPLY WITH STRUCTURAL REQUIREMENTS AND WASHINGTON STATE BUILDING CODE REQUIREMENTS FOR OPENING SIZE AND LOCATION BASED ON SIZE OF MEMBER PENETRATED. NOTE THERE ARE DIFFERENT OPENING REQUIREMENTS FOR BEARING WALLS, NON-BEARING WALLS, STRUCTURAL JOISTS, AND BEAMS. SEE STRUCTURAL DRAWINGS FOR DETAILS.
6. HOLE, NOTCH, OR OPENING SIZES ARE REQUIRED TO BE OF SUFFICIENT SIZE TO ACCOMMODATE PIPING AND INSULATION.
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8. CONTRACTOR RESPONSIBLE FOR FINAL DETAILING OF FLASHING AND SEALING OF REFRIGERANT PIPING PENETRATION OF ROOF ASSEMBLY.



ROOF HVAC NEW PLAN

SCALE: 1/8"=1'-0"





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MECHANICAL DETAILS

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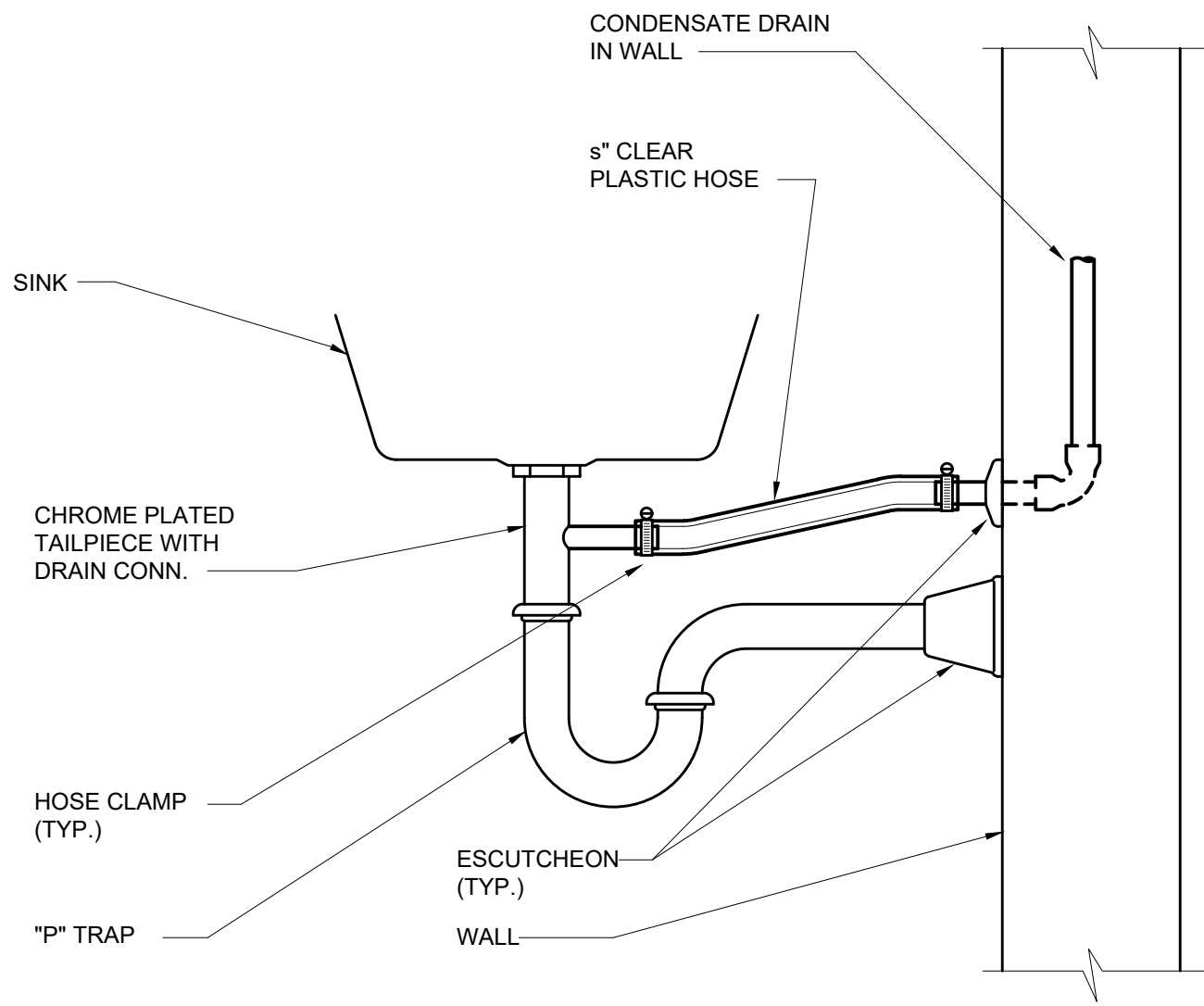
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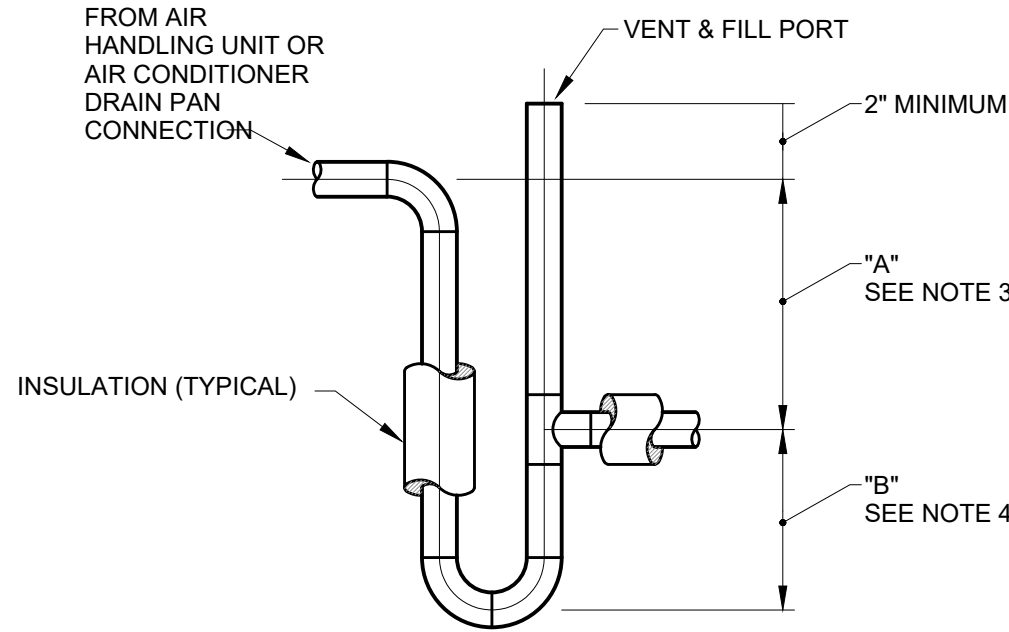
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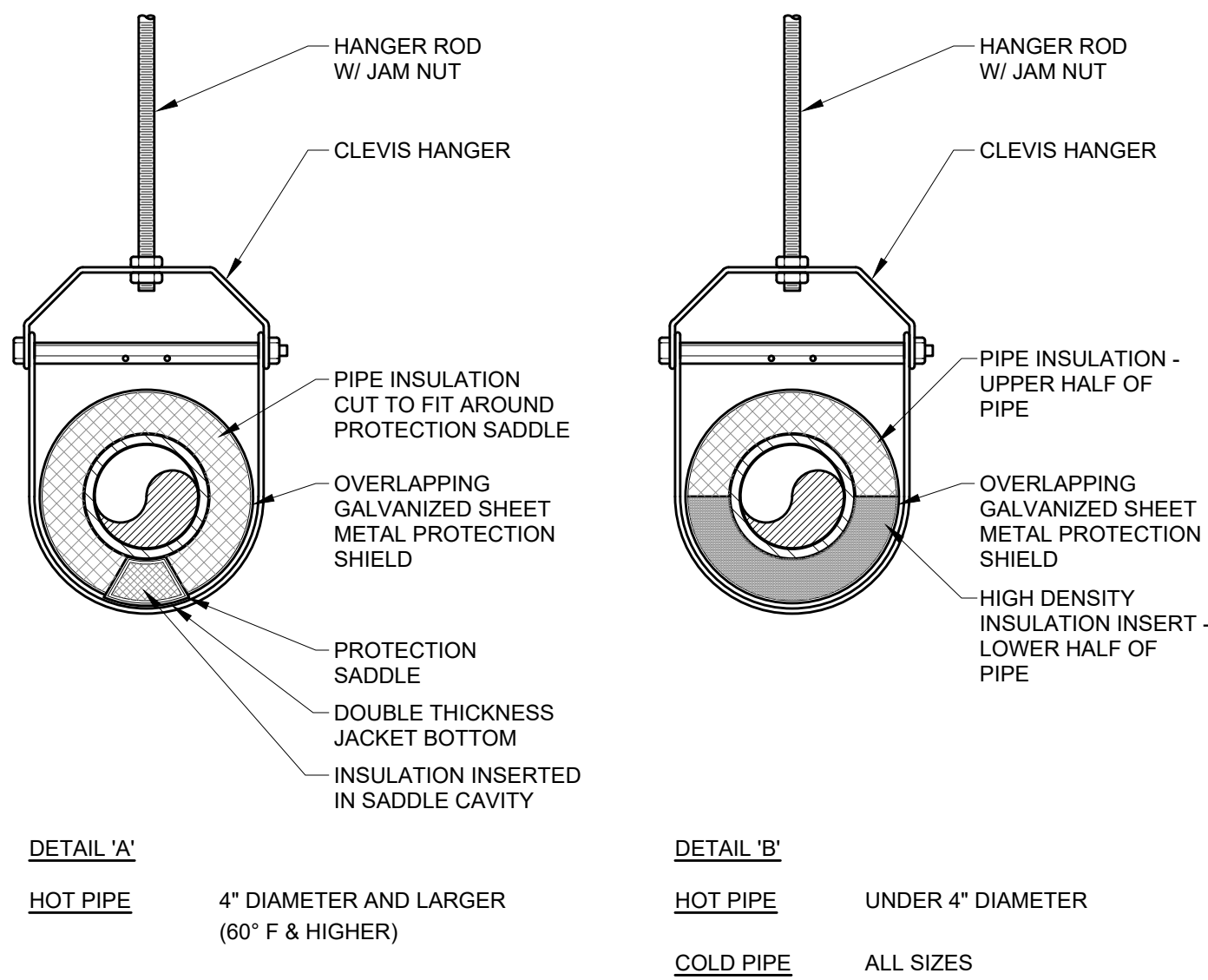
2 CONDENSATE DRAIN TO TRAP DETAIL
M3.0 SCALE: NTS



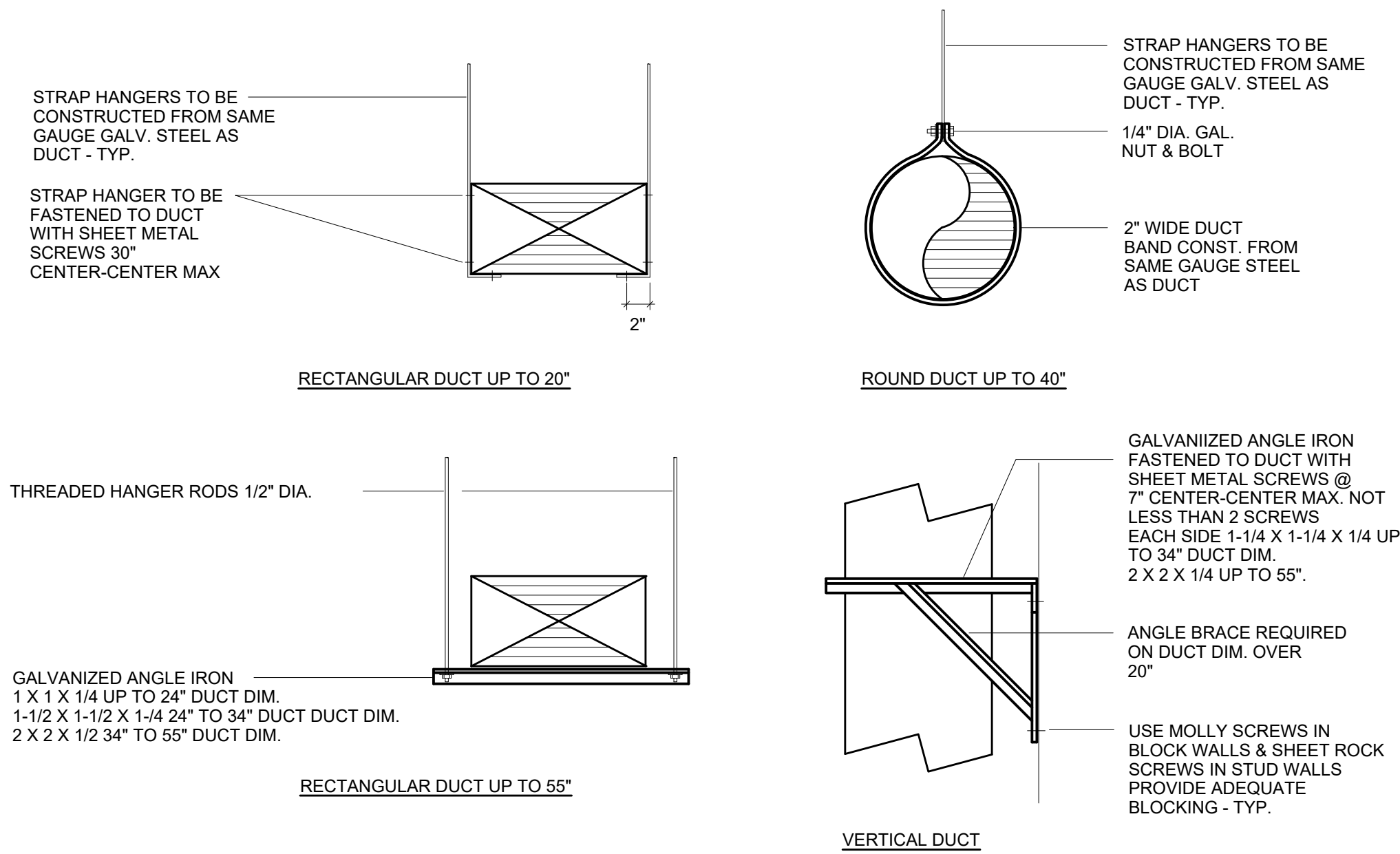
1 CONDENSATE DRAIN ON FAN COIL TRAP DETAIL
M3.0 SCALE: NTS

NOTES:

1. DRAIN LINE SHALL BE INSULATED.
2. DRAIN LINE SIZE SHALL BE EQUIPMENT MANUFACTURER'S MINIMUM DRAIN PAN CONNECTION SIZE BUT NOT LESS THAN 1" DIAMETER.
3. TRAP DEPTH DIMENSION "A" SHALL BE THE MAXIMUM POSSIBLE NEGATIVE PRESSURE IN THE UNIT AT THE DRAIN OUTLET (IN INCHES W.G.) PLUS ONE INCH. IF THE PRESSURE IS POSITIVE, "A" SHALL BE ONE INCH.
4. TRAP DEPTH DIMENSION "B" SHALL BE HALF OF "A" PLUS ONE INCH IF OUTLET IS UNDER NEGATIVE PRESSURE. IF THE PRESSURE IS POSITIVE, "B" SHALL BE THE MAXIMUM POSSIBLE PRESSURE (IN INCHES W.G.) PLUS TWO INCHES.



4 TYPICAL PIPE HANGERS - INSULATED PIPE
M3.0 SCALE: NTS



3 DUCT SUPPORT DETAILS
M3.0 SCALE: NTS



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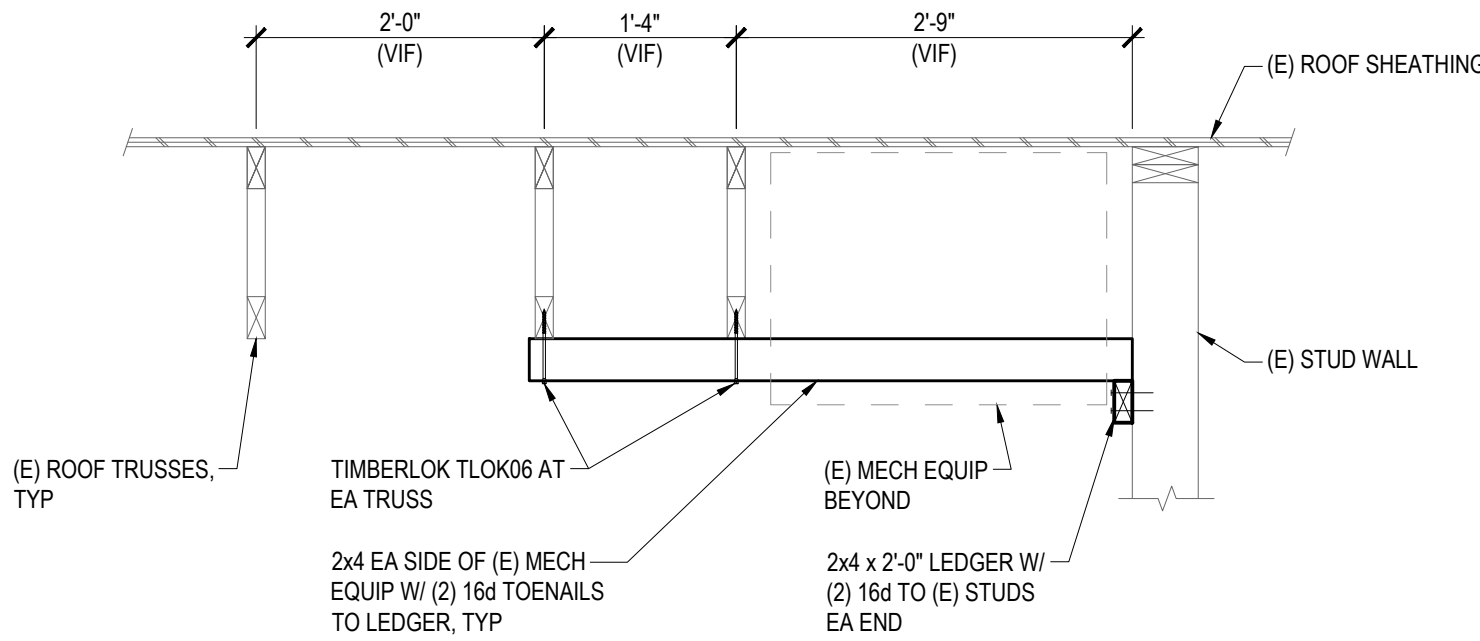
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STRUCTURAL
DETAILS

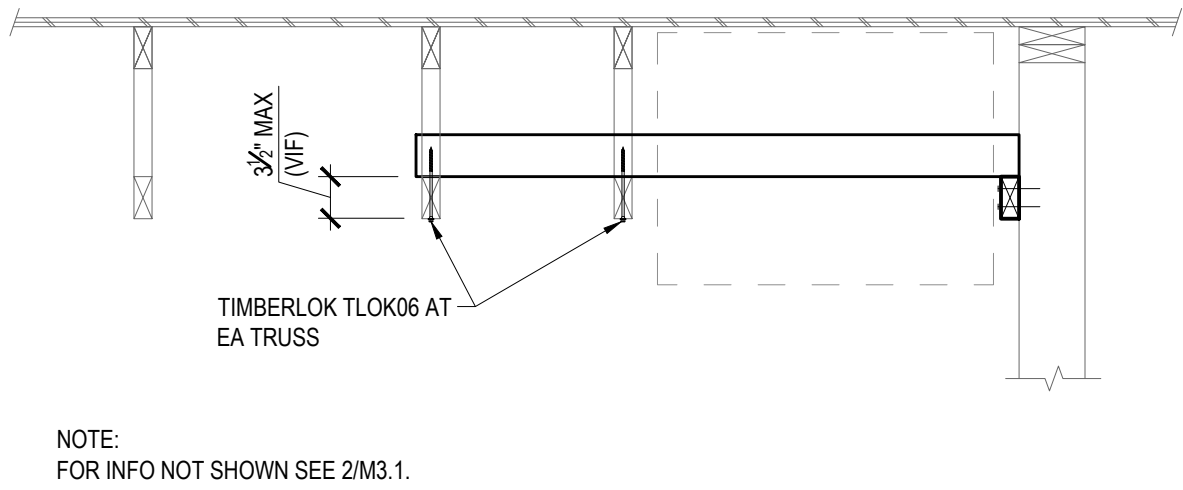
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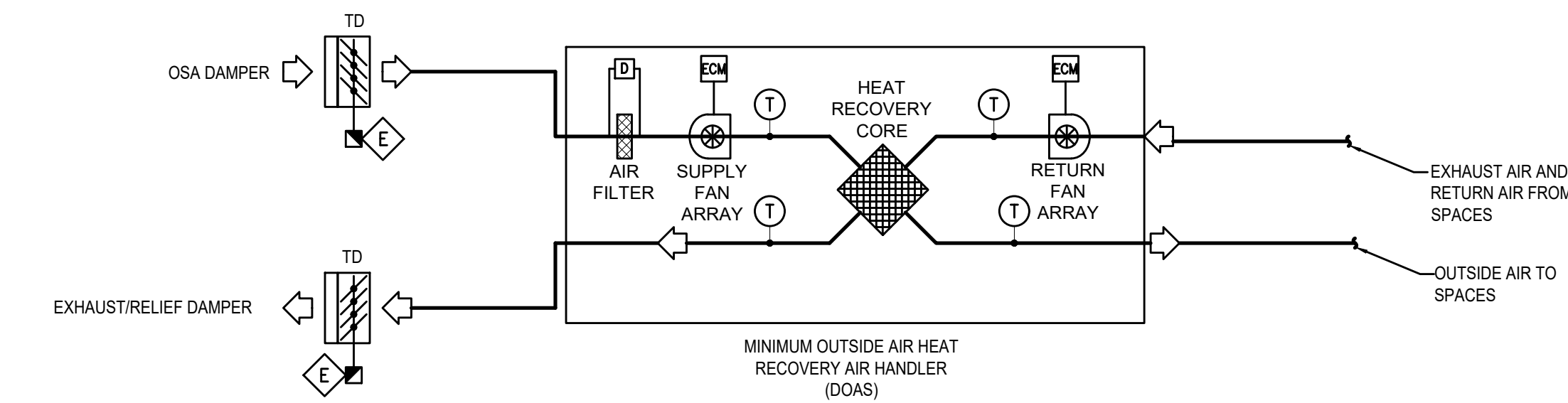
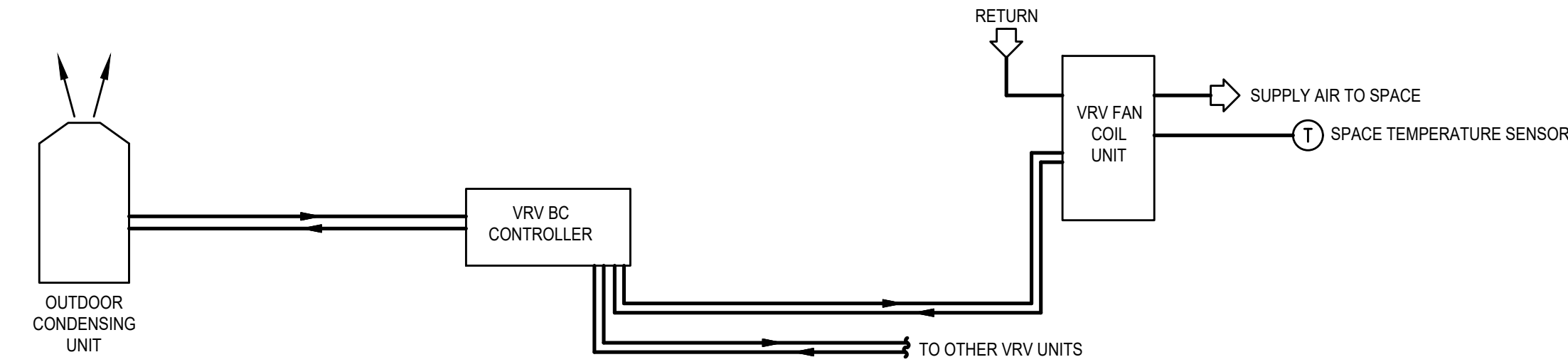


1 ROOF TRUSS REINFORCEMENT
M3.1 SCALE: NTS



2 ALTERNATE ROOF TRUSS REINFORCEMENT
M3.1 SCALE: NTS

DESCRIPTION OF OPERATIONS



SYSTEM DESCRIPTION:

VARIABLE REFRIGERANT VOLUME (VRV) SYSTEM SHALL BE PROVIDED WITH COMPLETE MANUFACTURERS CONTROLS PACKAGE. THE SYSTEM SHALL OPERATE UNDER ITS OWN CONTROLS. PROVIDE USER INTERFACE CONTROLLER IN SPACE. CONTROLS SYSTEM SHALL INTEGRATE CONTROL OF THE MINIMUM OUTSIDE AIR HEAT RECOVERY AIR HANDLER (DOAS) AND ASSOCIATED DAMPERS AND SENSORS. PROVIDE ALL LABOR, MATERIALS AND PROGRAMMING FOR A FULLY OPERATIONAL SYSTEM FOR BOTH VRV AND DOAS SYSTEM. COORDINATE WITH OWNER FOR SPACE TEMPERATURE SET POINTS DURING SYSTEM SETUP. PROVIDE CONTROLS DRAWINGS, PROGRAMMING, PRODUCT SUBMITTAL TO A/E FOR REVIEW PRIOR TO INSTALLATION.

FAN COILS SHALL CYCLE ON/OFF TO MEET HEATING/COOLING DEMAND. DOAS UNIT TO OPERATE BASED ON TIME OF DAY SCHEDULE.

SYSTEM DIAGRAM LEGEND

SYMBOL	DESCRIPTION
	BINARY INPUT DEVICE (SEE BELOW FOR NOMENCLATURE)
	ANALOG SENSOR (SEE BELOW FOR NOMENCLATURE)
	AMBIENT ANALOG SENSOR (WALL MOUNTED) (SEE BELOW FOR NOMENCLATURE)

NOMENCLATURE

NUMBER (IF SHOWN) INDICATES SPECIFIC REFERENCE IN SEQUENCE.

LETTER CODE:

C = CURRENT (AMPERAGE)
D = DIFFERENTIAL PRESSURE
E = END SWITCH
F = FLOW
H = HUMIDITY
L = LOW TEMPERATURE
P = PRESSURE
S = SWITCH (MANUAL)
T = TEMPERATURE
V = VELOCITY

ECM	ELECTRONICALLY COMMUTATED MOTOR
CR	CONTROL RELAY
CP	CONTROL PANEL
MS	MOTOR STARTER (SEE DIV. 16)



1/18/23

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MECHANICAL
CONTROLS

Scale: 1/8"=1'-0"
CEI Project No: 210094
Date: 01/18/2023
Designed: BN
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Sheet Number

M4.0

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Key Plan

Sheet Title

ELECTRICAL LEGEND AND ABBREVIATIONS

Scale:

CEI Project No: 210094

Date: 04/24/2023

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Sheet Number

E0.1

ELECTRICAL SYMBOLS

RECEPTACLES

	DUPLEX RECEPTACLE - NEMA 5-15R (NEMA 5-20R FOR DEDICATED CIRCUIT)
	DUPLEX RECEPTACLE - ABOVE COUNTER. COORDINATE W/ ARCH. ELEVATIONS
	DUPLEX RECEPTACLE - DEDICATED (NEMA 5-20R)
	DUPLEX RECEPTACLE - WEATHERPROOF
	DUPLEX RECEPTACLE - TAMPER RESISTANT
	DUPLEX RECEPTACLE - GROUND FAULT CIRCUIT INTERRUPTER
	DUPLEX RECEPTACLE - UNIVERSAL SERIAL BUS
	DUPLEX RECEPTACLE - SURGE PROTECTED
	DUPLEX RECEPTACLE - COMPUTERS
	DOUBLE DUPLEX RECEPTACLE
	DOUBLE DUPLEX RECEPTACLE - COMPUTERS
	DUPLEX RECEPTACLE - CEILING MOUNTED
	DOUBLE DUPLEX RECEPTACLE - CEILING MOUNTED, PROJECTORS
	DUPLEX RECEPTACLE - CEILING MOUNTED, PROJECTORS
	DOUBLE DUPLEX RECEPTACLE - MOUNT IN AV CABINET
	CONTROLLED DUPLEX RECEPTACLE
	ABOVE COUNTER CONTROLLED DUPLEX RECEPTACLE
	SPECIAL RECEPTACLE - TYPE AS INDICATED
	CORD REEL

EQUIPMENT

	PANELBOARD 277/480V
	PANELBOARD 120/208V OR 120/240V
	CABINET - TYPE AS INDICATED ON PLAN
	SWITCHBOARD
	TRANSFORMER - SIZE AND VOLTAGE AS INDICATED ON PLAN
	HORSEPOWER RATED TOGGLE SWITCH WITH OVERLOAD PROTECTION
	COMBINATION STARTER HP RATED, 3-POLE, NEMA 1 MINIMUM UNLESS NOTED OTHERWISE - OVERCURRENT PROTECTION AS REQUIRED
	NON-FUSED DISCONNECT SWITCH - SIZE PER CONNECTED LOAD
	FUSED DISCONNECT SWITCH - SIZE PER CONNECTED LOAD. PROVIDE FUSES PER EQUIPMENT NAMEPLATE.
	EQUIPMENT CONNECTION
	MECHANICAL EQUIPMENT CALLOUT. REFER TO MECHANICAL EQUIPMENT SCHEDULE.
	FLUSH FLOOR BOX

ELECTRICAL RISER

	GROUND
	CIRCUIT BREAKER NUMBER INDICATED TRIP SETTING AND NUMBER OF POLES
	PANELBOARD
	CURRENT TRANSFORMER (CT)
	CABLE TO BUS CONNECTION
	AUTOMATIC TRANSFER SWITCH (ATS)
	FEEDER TYPE - REFER TO FEEDER SCHEDULE ON ONE-LINE
	UTILITY METER
	POWER MONITOR
	WATTHOUR METER
	SURGE PROTECTIVE DEVICE (SPD)
	AVAILABLE SYMMETRICAL FAULT CURRENT IN AMPS

RACEWAYS

	RACEWAY CONCEALED IN WALL OR CEILING, EXPOSED IN UNFINISHED AREAS
	RACEWAY CONCEALED BELOW FLOOR
	FLEXIBLE CONDUIT FIXTURE WHIP WITH CONDUCTORS
	BRANCH CIRCUIT WIRING SHOWING CIRCUIT HOME RUN TO PANELBOARD. HASHMARKS SHOW QUANTITY OF CONDUCTORS WHEN MORE THAN THREE REQUIRED. DOT INDICATES GROUND CONDUCTOR. NEUTRAL CONDUCTOR SHOWN LARGER. PROVIDE DEDICATED NEUTRAL FOR EACH CIRCUIT.
	RACEWAY TURNING UP
	RACEWAY TURNING DOWN
	CIRCUIT CONTINUATION
	LOW VOLTAGE WIRING
	JUNCTION BOX
	PULL BOX

ELECTRICAL ABBREVIATIONS

AD	AUTO DOOR	FAAP	FIRE ALARM ANNUNCIATOR PANEL	PS	PROJECTION SCREEN
AF	AMPERE FRAME	FACP	FIRE ALARM CONTROL PANEL	PTR	PRINTER
AFF	ABOVE FINISHED FLOOR	FDMPR	FIRE DAMPER	PVC	POLYVINYL CHLORIDE (PLASTIC)
AHU	AIR HANDLING UNIT	FH	FUME HOOD	PWR	POWER
AIC	AMPERE INTERRUPTING CURRENT	FMT	FLEXIBLE METALLIC TUBING	QTY	QUANTITY
AMP	AMPERE	FU or F	FUSE	RA FAN	RETURN AIR FAN
AS	AMPERE SWITCH	FVNR	FULL VOLTAGE NON-REVERSING	RECPT	RECEPTACLE
ASV	AIR SOLENOID VALVE	G	GROUND	REF	REFRIGERATOR
AT	AMPERE TRIP	GALV	GALVANIZED	REQD	REQUIRED
ATS	AUTOMATIC TRANSFER SWITCH	GC	GOGGLE CABINET	RH	RANGE HOOD
AWG	AMERICAN WIRE GAUGE	GD	GARBAGE DISPOSAL	RMC	RIGID METAL CONDUIT
BAS	BUILDING AUTOMATION SYSTEM	GEC	GROUNDING ELECTRODE CONDUCTOR	RNG	RANGE
BBO	BACKBOARD OPERATOR	GEN	GENERATOR	RSD	ROLLING STEEL DOOR
BL	BLEACHERS	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SDMPR	SMOKE DAMPER
BLDG	BUILDING	GSV	GAS SOLENOID VALVE	SF	SUPPLY FAN
C	CONDUIT	HH	HAND HOLE	SOLV	SOLENOID VALVE
CAB	CABINET	HID	HIGH INTENSITY DISCHARGE	SPD	SURGE PROTECTIVE DEVICE
CB	CIRCUIT BREAKER	HP	HORSEPOWER	SPEC	SPECIFICATION
CCTV	CLOSED CIRCUIT TELEVISION	HPF	HIGH POWER FACTOR	SPST	SINGLE POLE, SINGLE THROW
CKT	CIRCUIT	HPS	HIGH PRESSURE SODIUM	ST	SHUNT TRIP
CLG	CEILING	HT	HEAT TRACE	STD	STANDARD
CM	COFFEE MAKER	IH	INSTAHOT	STL	STEEL
CMU	CONCRETE MASONRY UNIT	IM	ICE MACHINE	SW	SWITCH
CO	CONDUIT ONLY	IWD	INTERCOM WALL DISPLAY	SWBD	SWITCHBOARD
COMM	COMMUNICATION	J-BOX	JUNCTION BOX	SWGR	SWITCHGEAR
COP	COPIER	kcml	THOUSAND CIRCULAR MILS	TEL	TELEPHONE
CT	COOK TOP	kV	KILOVOLT	TEMP	TEMPORARY
CT	CURRENT TRANSFORMER	kVA	KILOVOLT AMPERE	TP	TRAP PRIMER
CU	COPPER	kW	KILOWATT	TR	TAMPER RESISTANT
DCVA	DOUBLE CHECK VALVE ASSEMBLY	kWh	KILOWATT HOUR	TTB	TELEPHONE TERMINAL BOARD
DET	DETAIL	MAX	MAXIMUM	TYP	TYPICAL
DIA	DIAMETER	MCC	MOTOR CONTROL CENTER	UC	UNDER COUNTER
DISC	DISCONNECT	MFR	MANUFACTURER	UGND	UNDERGROUND
DSPL	DISPOSAL	MECH	MECHANICAL	UH	UNIT HEATER
DLC	DOOR LOCK CONTROLLER	MH	MANHOLE; METAL HALIDE	UL	UNDERWRITERS LABORATORIES
DN	DOWN	MIN	MINIMUM	UON	UNLESS OTHERWISE NOTED
DO	DOOR OPERATOR	ML	MAGNETIC LOCK	UPS	UNINTERRUPTIBLE POWER SUPPLY
DPST	DOUBLE POLE, SINGLE THROW	MLO	MAIN LUGS ONLY	USB	UNIVERSAL SERIAL BUS
DRY	DRYER	MTD	MOUNTED	V	VOLT
DW	DISHWASHER	MTG	MOUNTING	VA	VOLT AMPERE
DWG	DRAWING	MW	MICROWAVE	VFD	VARIABLE FREQUENCY DRIVE
EA	EACH	NEC	NATIONAL ELECTRICAL CODE	VM	VENDING MACHINE
EF	EXHAUST FAN	NEUT	NEUTRAL	W	WATT
EH	ELECTRIC HEATER	NC	NORMALLY CLOSED	W/O	WITH
EHD	ELECTRIC HAND DRYER	NIC	NOT IN CONTRACT	WAC	WASHINGTON ADMINISTRATIVE CODE
ELEC	ELECTRIC	NO	NUMBER; NORMALLY OPEN	WAS	WASHER
ELEV	ELEVATOR	NTS	NOT TO SCALE	W/D	STACKED WASHER / DRYER
EMT	ELECTRICAL METALLIC TUBING	OD	OVERHEAD (COILING) DOOR	WF	WASH FOUNTAIN
EPO	EMERGENCY POWER OFF	OF/CI	OWNER FURNISHED / CONTRACTOR INSTALLED	WM	WASHING MACHINE
EQUIP	EQUIPMENT	OF/OI	OWNER FURNISHED / OWNER INSTALLED	W/O	WITHOUT
EWC	ELECTRIC WATER COOLER	PF	POWER FACTOR	WON	WON DOOR
EWI	ELECTRIC WATER HEATER	PH or Ø	PHASE	WP	WEATHERPROOF; WATERPROOFING
EWS	ELECTRIC WINDOW SHADE	PIV	POST INDICATOR VALVE	XFMR	TRANSFORMER
EXIST	EXISTING	PNL	PANEL	Z	IMPEDANCE
FA	FIRE ALARM	PROJ	PROJECTOR		

DRAWING INDEX

SHEET NUMBER	DESCRIPTION
E0.1	ELECTRICAL LEGEND AND ABBREVIATIONS
E0.2	GENERAL NOTES
E0.3	ELECTRICAL SPECIFICATIONS
E1.0	FIRST FLOOR ELECTRICAL DEMO PLAN
E1.1	ROOF ELECTRICAL DEMO PLAN
E2.0	FIRST FLOOR POWER PLAN
E2.1	ROOF POWER PLAN
E3.0	ONE-LINE DIAGRAM
E4.0	PANEL SCHEDULES
E4.1	PANEL SCHEDULE AND MECHANICAL EQUIPMENT SCHEDULE

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GENERAL NOTES

Scale:

CEI Project No: 210094

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Sheet Number

E0.2

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY TO ALL DRAWINGS

- ITEMS NOTED AS "TYPICAL" ON ANY DRAWING REFERS TO ALL DRAWINGS.
- PROVIDE NYLON PULL STRING IN ALL EMPTY RACEWAYS.
- NO STRUCTURAL MEMBERS SHALL BE CUT OR ALTERED WITHOUT PRIOR APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER.
- ALL RACEWAYS IN FINISHED SPACES SHALL BE CONCEALED.
- PROVIDE 2" EMT SLEEVES FOR LOW VOLTAGE WIRING RUNNING THROUGH NON-RATED WALLS, FLOORS AND CEILINGS.
- PROVIDE STI "EZ-PATH" ASSEMBLIES AT EACH LOCATION WHERE LOW VOLTAGE WIRING PENETRATES A RATED WALL OR CEILING. ASSUME 50 ARE TO BE PROVIDED.
- SEAL ALL PENETRATIONS IN RATED FLOORS AND CEILINGS WITH A UL APPROVED FIRE STOP SYSTEM.
- ALL LOW VOLTAGE WIRING NOT RUN IN A METALLIC RACEWAY SHALL BE PLENUM RATED.
- ALL EQUIPMENT, RACEWAYS, DEVICES, ETC. SHALL BE UL LISTED.
- WHERE A CONFLICT EXISTS THE MOST EXPENSIVE OPTION SHALL GOVERN.

POWER PLANS

THE FOLLOWING GENERAL NOTES APPLY TO ALL POWER PLAN DRAWINGS

- CIRCUIT ALL FIRE/SMOKE DAMPERS AND SMOKE DAMPERS FROM NEAREST 120V EMERGENCY PANEL WITH 1/2"-3#12. UTILIZE SPARE 20A-1P BREAKER PROVIDED. RECORD CIRCUITING ON AS-BUILT PANEL SCHEDULES AND DRAWINGS. REFER TO MECHANICAL DRAWINGS FOR DAMPER LOCATIONS.
- COORDINATE LOCATIONS OF BAS CONTROL POWER WITH THE CONTROLS CONTRACTOR PRIOR TO ROUGH-IN.
- PRIOR TO ORDERING EQUIPMENT OR ROUGH-IN, COORDINATE WITH THE MECHANICAL CONTRACTOR TO ESTABLISH THE ACTUAL LOAD AND OVERCURRENT PROTECTION REQUIREMENTS FOR EACH PIECE OF EQUIPMENT.
- REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE FOR EQUIPMENT RATINGS AND FEEDER SIZES.
- PROVIDE DISCONNECT SWITCH OR COMBINATION STARTER FOR EACH PIECE OF EQUIPMENT AS SHOWN ON MECHANICAL EQUIPMENT CONNECTION SCHEDULE.
- PRIOR TO ROUGH-IN OF ALL EQUIPMENT SPECIFIED BY OTHER DIVISIONS, COORDINATE WITH THE EQUIPMENT MANUFACTURER TO ESTABLISH ALL REQUIREMENTS FOR EACH PIECE OF EQUIPMENT.
- ALL EXTERIOR DISCONNECTS/STARTERS SHALL BE NEMA 3R.
- ALL HOMERUNS OVER 75' SHALL BE #10 AWG MINIMUM.
- FEEDER ROUTING SHOWN IS APPROXIMATE. COORDINATE WITH MECHANICAL SYSTEMS AND BUILDING STRUCTURE. PROVIDE OFFSETS AS REQUIRED.
- PROVIDE 120-14 HARDWIRED CONNECTION TO EACH TRAP PRIMER FROM NEAREST ADJACENT RECEPTACLE UTILIZING 1/2" - 3#12. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS. RECORD CIRCUITING ON AS-BUILT PANEL SCHEDULES AND DRAWINGS.

EQUIPMENT CONNECTIONS

- VERIFY ELECTRICAL REQUIREMENTS WITH MANUFACTURER SHOP DRAWINGS PRIOR TO ROUGH-IN.
- INSTALL AND WIRE EQUIPMENT PER MANUFACTURER SHOP DRAWINGS.
- PROVIDE ALL RACEWAYS, WIRING AND ANCILLARY EQUIPMENT AS SHOWN ON MANUFACTURER SHOP DRAWINGS.
- PROVIDE HARDWIRED CONNECTION, RECEPTACLE OR FUSED DISCONNECT SWITCH AS SHOWN ON MANUFACTURER SHOP DRAWINGS.

ONE-LINE DIAGRAM

- THE ONE-LINE DIAGRAM IS DIAGRAMMATIC AND DOES NOT SHOW THE ACTUAL ROUTING OF THE RACEWAYS.
- NOT ALL CIRCUIT BREAKERS ARE SHOWN. REFER TO PANEL AND SWITCHBOARD SCHEDULES FOR OTHER LOADS SERVED, AND SPARE CIRCUIT BREAKERS.

BRANCH CIRCUIT WIRING

THE FOLLOWING GENERAL NOTES APPLY TO ALL DRAWINGS

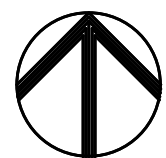
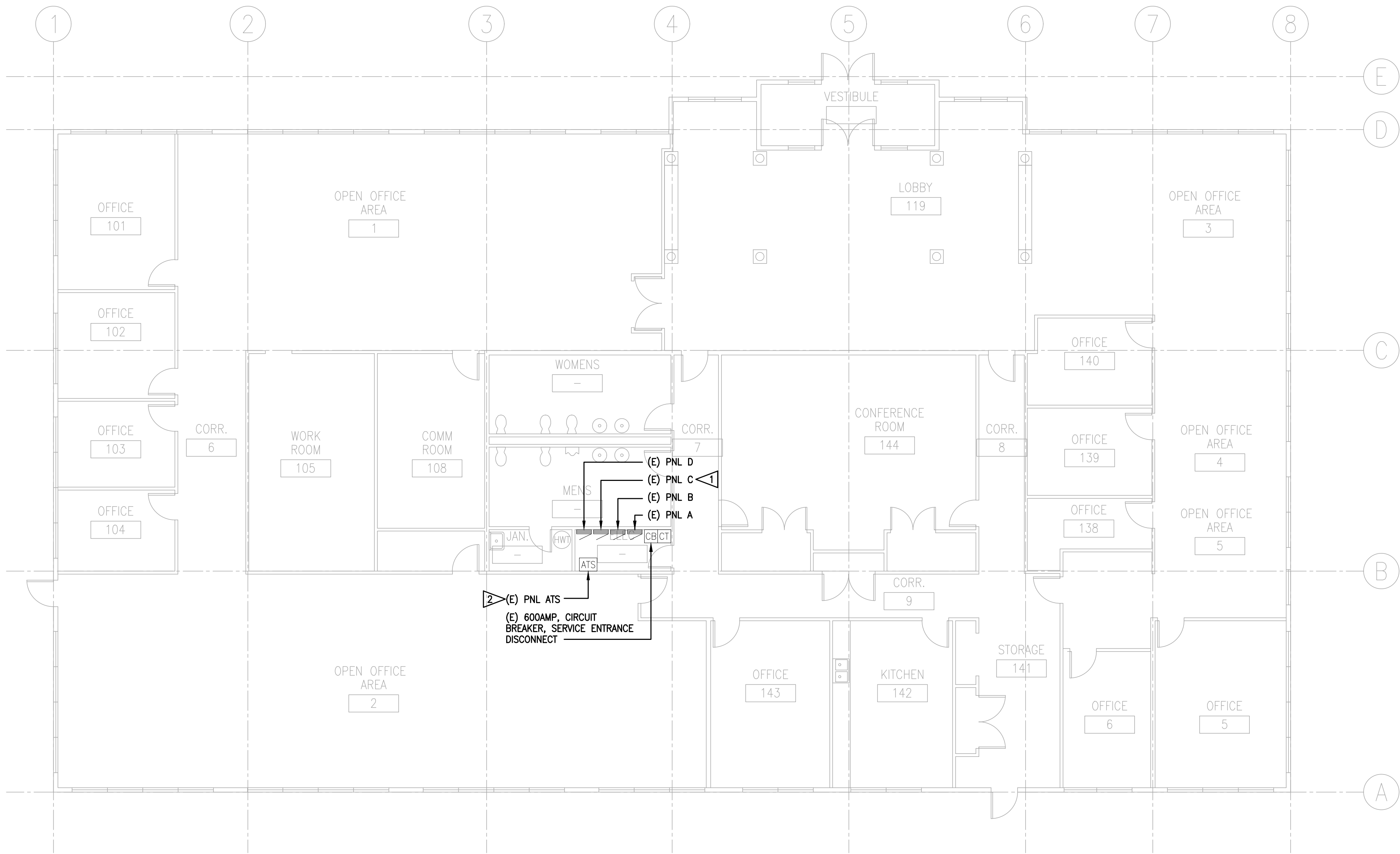
- IN GENERAL ONLY CIRCUIT NUMBERS HAVE BEEN SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED RACEWAYS AND WIRING.
- SHOW ALL RACEWAYS AND WIRING ON AS-BUILT DRAWINGS.
- GENERAL:
 - MINIMUM RACEWAY SIZE SHALL BE 3/4".
 - NO MORE THAN 7 #12 AWG CONDUCTORS SHALL BE INSTALLED IN A RACEWAY.
 - HOMERUNS GREATER THAN 75 FEET TO THE FIRST DEVICE SHALL BE NO. 10 AWG.
 - PROVIDE A GROUND CONDUCTOR IN ALL RACEWAYS.
 - PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT.
- POWER:
 - PROVIDE CONDUCTORS AS REQUIRED TO PROVIDE CIRCUITING SHOWN.
 - FOR 30 AMP BRANCH CIRCUITS PROVIDE #10 AWG CONDUCTORS.
 - FOR 40 AMP AND LARGER BRANCH CIRCUITS PROVIDE RACEWAYS AND WIRING AS SHOWN ON THE DRAWINGS.
 - PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT.
- MECHANICAL EQUIPMENT: PROVIDE RACEWAYS AND WIRING AS SHOWN ON THE MECHANICAL EQUIPMENT CONNECTION SCHEDULE.

END OF ELECTRICAL SPECIFICATION

Key Plan

Sheet Number

E0.3



FIRST FLOOR ELECTRICAL DEMO PLAN

SCALE: 1/8"=1'-0"

DEMOLITION NOTES

1. THE CONTRACT DOCUMENTS DO NOT SHOW ALL REQUIRED DEMOLITION WORK. THE CONTRACTOR SHALL SURVEY THE EXISTING CONDITIONS AND ESTABLISH THE EXTENT OF DEMOLITION PRIOR TO BID.
2. THE EXISTING CONDITIONS SHOWN, USED AS A BASIS OF DESIGN, WHERE TAKEN FROM AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS THAT MAY EFFECT CONSTRUCTION. IF ANY DISCREPANCIES ARE FOUND THE CONTRACTOR SHALL CONTACT THE ENGINEER IN WRITING AND REQUEST DIRECTION PRIOR TO COMMENCING WORK.
3. ANY AND ALL EQUIPMENT HAVING ELECTRICAL CONNECTIONS THAT DISCONNECTING AND/OR RECONNECTING AS A RESULT OF CONSTRUCTION SHALL BE INCLUDED AS A PART OF THIS CONTRACT.
4. THE EXISTING ELECTRICAL DEVICES, CONDUIT, WIRING, AND EQUIPMENT THAT FOR ANY REASON OBSTRUCTS CONSTRUCTION SHALL BE RELOCATED UNLESS OTHERWISE NOTED. THE LOCATION SHALL BE AS CLOSE AS POSSIBLE TO THE ORIGINAL LOCATION.
5. ALL EXISTING ELECTRICAL EQUIPMENT IN PORTIONS OF THE BUILDING NOT BEING REMODELED SHALL BE LEFT IN WORKING CONDITION.

FLAG NOTES

1. PANELBOARD C TO BE DEMOLISHED. THE EXISTING CIRCUITS ARE TO BE MOVED BACK TO NEW JUNCTION BOX(ES) AND PROTECTED FOR EXTENSION TO A NEW PANELBOARD. REFER TO PANEL SCHEDULE ON SHEET E4.0 - E4.1 AND ONE-LINE DIAGRAM ON SHEET E3.0.
2. AUTO TRANSFER SWITCH, ENCLOSED CIRCUIT BREAKER, CONDUIT, AND CABLE IS TO BE DEMOLISHED. REFER TO ONE-LINE DIAGRAM ON SHEET E3.0.



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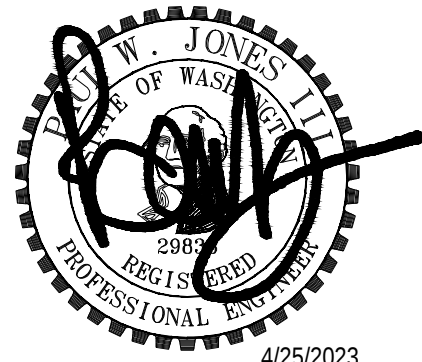
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Key Plan

Sheet Title

**FIRST FLOOR
ELECTRICAL
DEMO PLAN**

Scale:

CEI Project No: 210094

Date: 04/24/2023

Designed: CEI

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Sheet Number

E1.0

DEMOLITION NOTES

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2. THE EXISTING CONDITIONS SHOWN, USED AS A BASIS OF DESIGN, WHERE TAKEN FROM AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS THAT MAY AFFECT CONSTRUCTION. IF ANY DISCREPANCIES ARE FOUND THE CONTRACTOR SHALL CONTACT THE ENGINEER IN WRITING AND REQUEST DIRECTION PRIOR TO COMMENCING WORK.
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5. ALL EXISTING ELECTRICAL EQUIPMENT IN PORTIONS OF THE BUILDING NOT BEING REMODELED SHALL BE LEFT IN WORKING CONDITION.

FLAG NOTES

- 1

HVAC EQUIPMENT TO BE DEMOLISHED. REMOVE CONNECTION, CONDUIT AND WIRING. MAINTAIN AND PROTECT ROOF PENETRATION FOR REUSE.
- 2

HVAC EQUIPMENT TO BE DEMOLISHED. REMOVE CONNECTION, CONDUIT AND WIRING. CAP AND SEAL ROOF PENETRATION.



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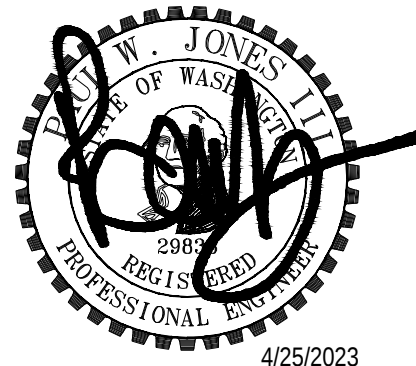
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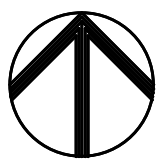
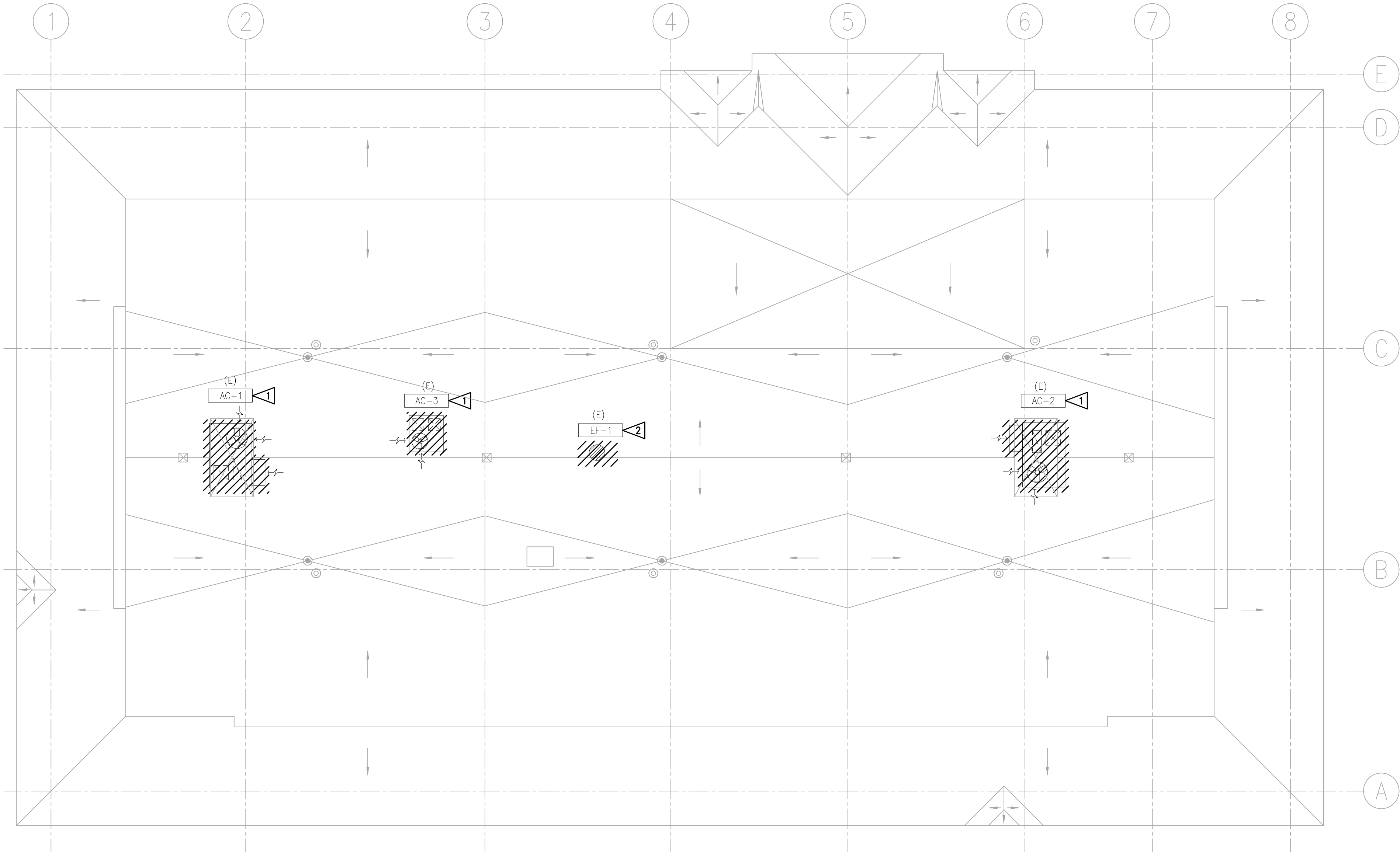
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Key Plan



ROOF ELECTRICAL DEMO PLAN

SCALE: 1/8"=1'-0"

Sheet Title

ROOF
ELECTRICAL
DEMO PLAN

Scale:

CEI Project No: 210094

Date: 04/24/2023

Designed: CEI

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Sheet Number

E1.1

GENERAL NOTES

- 1. REFER TO SHEET E0.2 FOR GENERAL NOTES.
- 2. REFER TO SHEET E0.3 FOR ELECTRICAL SPECIFICATIONS.
- 3. REFER TO SHEET E3.0 FOR ONE-LINE DIAGRAM.
- 4. REFER TO SHEET E4.0-E4.1 FOR PANEL SCHEDULES.

FLAG NOTES

- 1 PROVIDE PANEL C1 AND C2. REFER TO ONE-LINE DIAGRAM AND PANEL SCHEDULES.
- 2 PROVIDE NEW FEEDER AND CONNECTION FROM EXISTING TAP BOX AT LOCATION OF REMOVED PNL C1. REFER TO ONE-LINE DIAGRAM.
- 3 PROVIDE NEW EQUIPMENT CONNECTIONS REFER TO MECHANICAL EQUIPMENT SCHEDULE AND PANEL SCHEDULES. COORDINATE CONNECTION REQUIREMENTS WITH MECHANICAL SHOP DRAWINGS.



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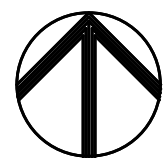
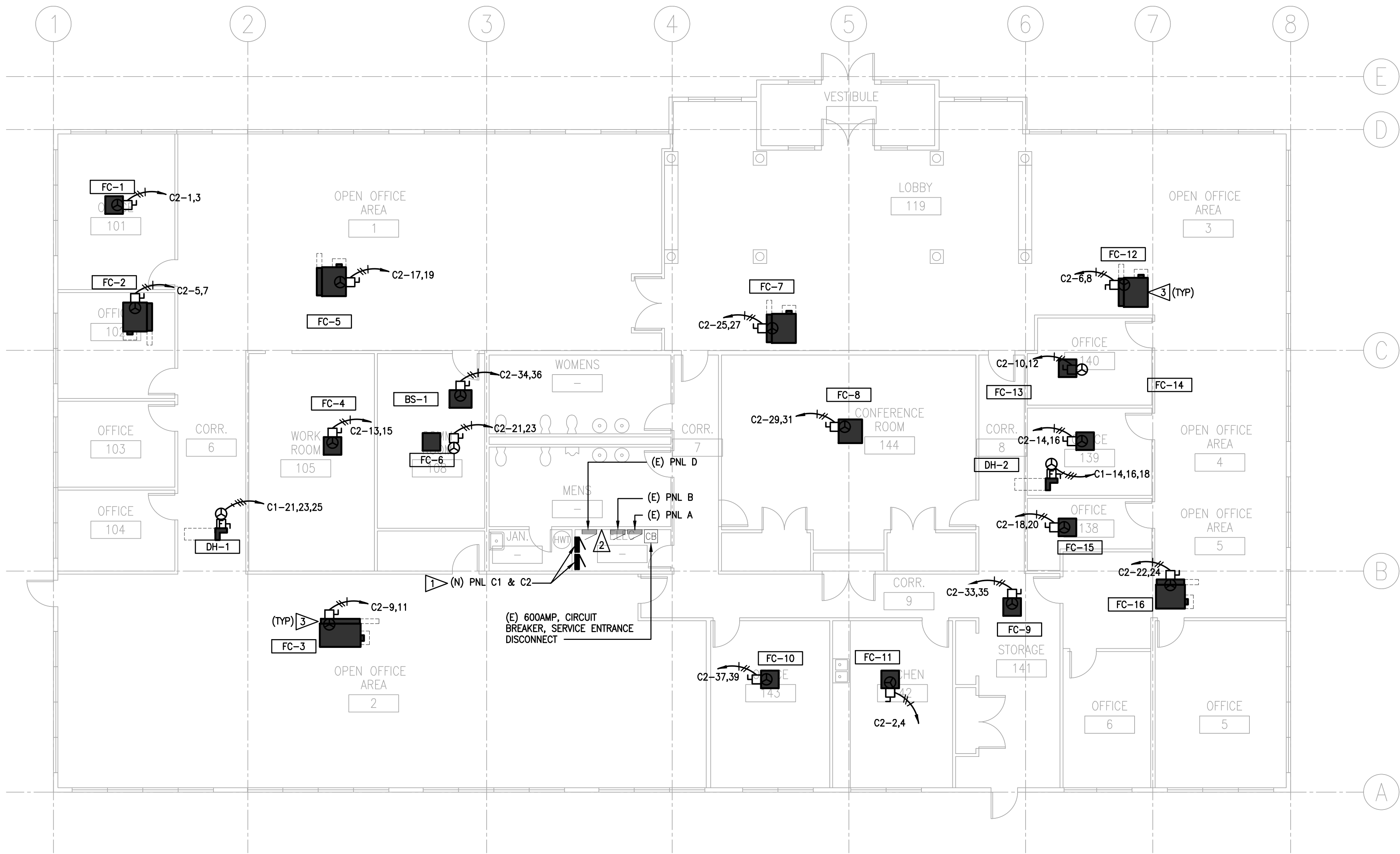
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Key Plan



FIRST FLOOR POWER PLAN

SCALE: 1/8"=1'-0"

Sheet Title

FIRST FLOOR
POWER PLAN

Scale:

CEI Project No: 210094

Date: 04/24/2023

Designed: CEI

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Sheet Number

E2.0

GENERAL NOTES

1. REFER TO SHEET E0.2 FOR GENERAL NOTES.
2. REFER TO SHEET E0.3 FOR ELECTRICAL SPECIFICATIONS.
3. REFER TO SHEET E3.0 FOR ONE-LINE DIAGRAM.
4. REFER TO SHEET E4.0-E4.1 FOR PANEL SCHEDULES.

FLAG NOTES

1. PROVIDE NEW EQUIPMENT CONNECTIONS REFER TO MECHANICAL EQUIPMENT SCHEDULE AND PANEL SCHEDULES. COORDINATE CONNECTION REQUIREMENTS WITH MECHANICAL SHOP DRAWINGS
2. REUSE EXISTING ROOF PENETRATION LOCATIONS- PROVIDE NEW ROOF JACK, FLASHING, AND SEALANT AS REQUIRED. COORDINATE WITH MECHANICAL SYSTEMS INSTALLATION FOR CONNECTION COORDINATION.
3. PROVIDE NEW RECEPTACLE, CONDUIT, AND WIRING.



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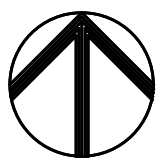
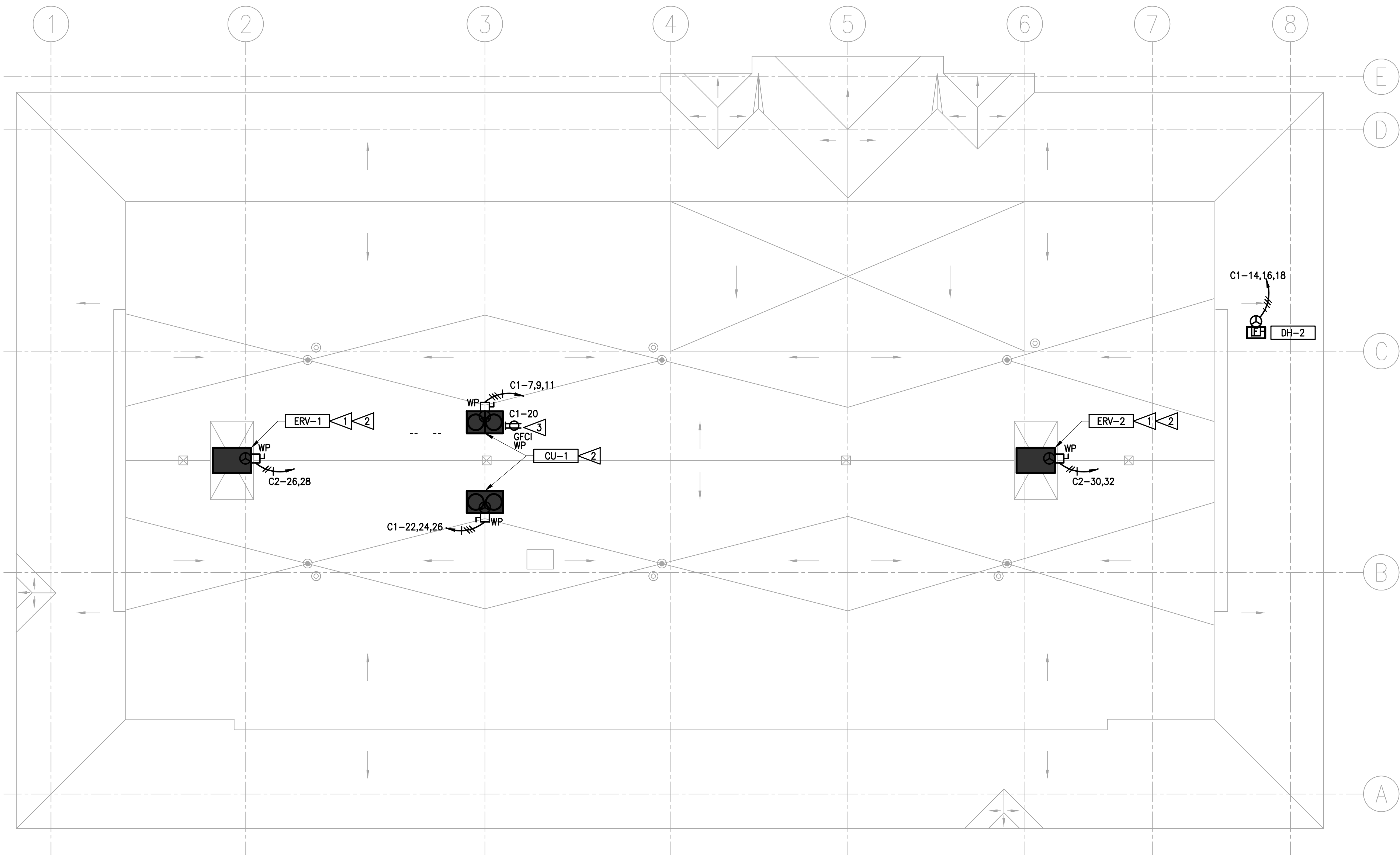
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ROOF POWER PLAN

SCALE: 1/8"=1'-0"

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ROOF
POWER PLAN

Scale:

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E2.1

Service Load Summary					
		kVA		kVA	Amps
Distribution Equipment					
(E) Panelboard A	Total Feeder Demand	18.22	NEC 220.87		
(E) Panelboard B	Total Feeder Demand	17.15	NEC 220.87		
(E) Panelboard D	Total Feeder Demand	18.79	NEC 220.87		
(E) Panelboard E	Total Feeder Demand	27.52	NEC 220.87		
		81.68	x 1.25	102.10	283.61
(N) Panelboard C1	Total Feeder Demand			54.46	151.28
(N) Panelboard C2	Total Feeder Demand			18.04	50.11
				174.60	485.00
Existing PSE Service:		600Amps, 208Y/120volts, 3phase, 4wire.			
Total				174.60	485.00

COPPER FEEDER SCHEDULE						
AMPACITY (AMPS)	SYMBOL ID.	FEEDER 3 PHASE, 4 WIRE	RACEWAY	SYMBOL ID.	FEEDER 3 PHASE, 3 WIRE	RACEWAY
20	20	4#12, 1#12 G	3/4"	20N	3#12, 1#12 G	3/4"
30	30	4#10, 1#10 G	3/4"	30N	3#10, 1#10 G	3/4"
40	40	4#8, 1#10 G	1"	40N	3#8, 1#10 G	1"
50	50	4#6, 1#10 G	1"	50N	3#6, 1#10 G	1"
60	60	4#4, 1#10 G	1.5"	60N	3#4, 1#10 G	1.5"
70	70	4#4, 1#8 G	1.5"	70N	3#4, 1#8 G	1.5"
100	100	4#2, 1#8 G	1.5"	100N	3#2, 1#8 G	1.5"
125	125	4#1, 1#6 G	2"	125N	3#1, 1#6 G	1.5"
150	150	4#1/0, 1#6 G	2"	150N	3#1/0, 1#6 G	1.5"
175	175	4#2/0, 1#6 G	2"	175N	3#2/0, 1#6 G	2"
200	200	4#3/0, 1#6 G	2.5"	200N	3#3/0, 1#6 G	2"
225	225	4#4/0, 1#4 G	2.5"	225N	3#4/0, 1#4 G	2"
250	250	4#250 kcmil, 1#4 G	3"	250N	3#250 kcmil, 1#4 G	2.5"
300	300	4#350 kcmil, 1#4 G	3"	300N	3#350 kcmil, 1#4 G	3"
400	400	4#600 kcmil, 1#2 G	4"	400N	3#600 kcmil, 1#2 G	3.5"
500	500	2 SETS 4#250 kcmil, 1#1/0 G	(2) 3"	500N	2 SETS 3#250 kcmil, 1#1/0 G	(2) 2.5"
600	600	2 SETS 4#350 kcmil, 1#1/0 G	(2) 3"	600N	2 SETS 3#350 kcmil, 1#1/0 G	(2) 3"
800	800	2 SETS 4#600 kcmil, 1#1/0 G	(2) 4"	800N	2 SETS 3#600 kcmil, 1#1/0 G	(2) 3.5"
1000	1000	3 SETS 4#500 kcmil, 1#2/0 G	(3) 3.5"	1000N	3 SETS 3#500 kcmil, 1#2/0 G	(3) 3"
1200	1200	4 SETS 4#350 kcmil, 1#3/0 G	(4) 3"	1200N	4 SETS 3#350 kcmil, 1#3/0 G	(4) 3"
1600	1600	4 SETS 4#600 kcmil, 1#4/0 G	(4) 4"	1600N	4 SETS 3#600 kcmil, 1#4/0 G	(4) 3.5"
2000	2000	5 SETS 4#600 kcmil, 1#250 kcmil G	(5) 4"	2000N	5 SETS 3#600 kcmil, 1#250kcmil G	(5) 3.5"
2500	2500	6 SETS 4#600 kcmil, 1#350 kcmil G	(6) 4"	2500N	6 SETS 3#600 kcmil, 1#350 kcmil G	(6) 3.5"
3000	3000	8 SETS 4#500 kcmil, 1#500 kcmil G	(8) 3.5"	3000N	8 SETS 3#500 kcmil, 1#500 kcmil G	(8) 3.5"
4000	4000	10 SETS 4#600 kcmil, 1#600 kcmil G	(10) 4"	4000N	10 SETS 3#600 kcmil, 1#600 kcmil G	(10) 3.5"
NOTES: 1. ALL FEEDERS ARE COPPER WITH THHN/THWN INSULATION. 2. FOR FEEDERS WITH AN "SL" SUFFIX, DELETE THE GROUND CONDUCTOR.						

GENERAL NOTES

- REFER TO SHEET E0.2 FOR GENERAL NOTES.
- REFER TO SHEET E0.3 FOR ELECTRICAL SPECIFICATIONS.
- REFER TO SHEET E4.0 and E4.1 FOR PANEL SCHEDULES.



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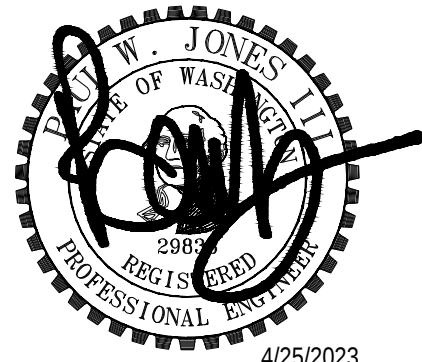
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1700 COLLEGE WAY E
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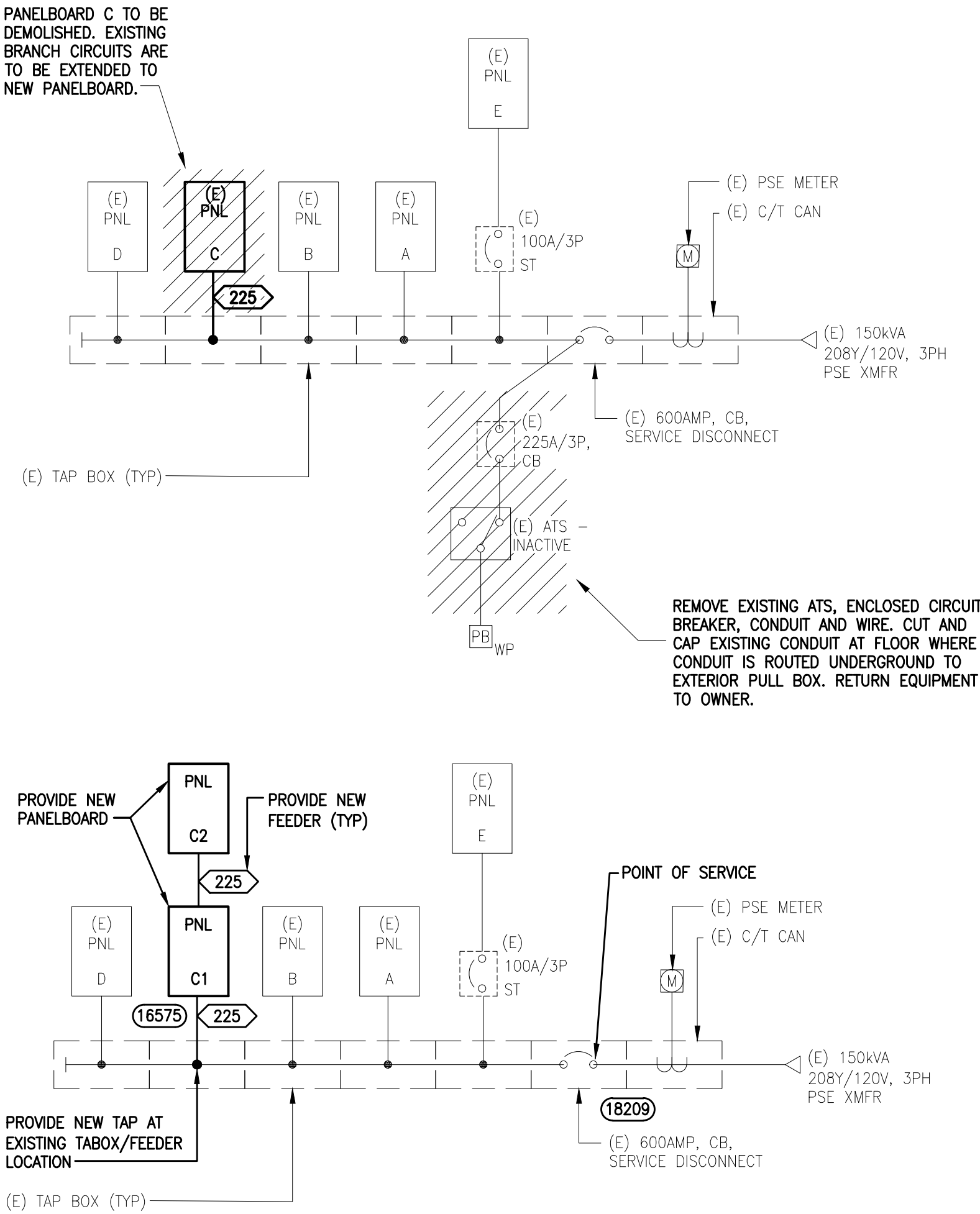
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Key Plan



1 ONE-LINE DIAGRAM
E3.0 SCALE: NONE

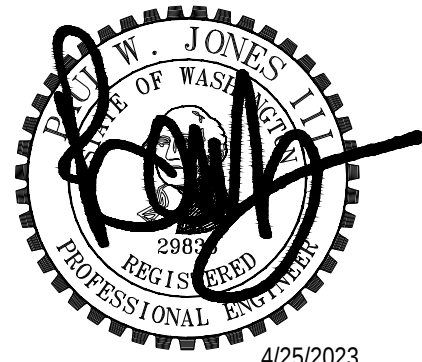
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04/24/2023

Revisions

Registration



Key Plan

Sheet Title

PANEL
SCHEDULES

Scale:

CEI Project No: 210094

Date: 04/24/2023

Designed: CEI

Drawn: CLB

Checked: PT

Sheet Number

E4.0

Skagit Co Parker Bldg												PANEL SCHEDULE												EXIST. PANEL: (E) PNL A												210094												
Location:												Feed Through:												Source:																								
Ckt	Load Description											Phase	Amp	Poles	Notes	Rec.	Ltg.	Kit.	Mtr.	Htg.	Clg.	Cont.	Non.	Total	Specifications																							
1	REC - NE RMS 140,120,124,126											A	20	1		1.20									1.20																							
3	REC - NE RMS 140,120,124,126											B	20	1		1.20									1.20	Rating (Amps): 200																						
5	REC - NE RMS IG / PARTITION											C	20	1		1.20									1.20	Voltage (L-L): 208																						
7	CAPPED SE REC - PARTITION W.											A	20	1		1.20									1.20	Phase: 3																						
9	CAPPED E RM 130,131,133 #2											B	20	1		1.20									1.20	Wire: 4																						
11	REC - NE RM 124,126											C	20	1		1.20									1.20	Bus Material: Cu																						
13	REC - SE RM 136 PARTITION #3											A	20	1		1.20									1.20	Int. Rating:																						
15	REC - SE RMS 137,134 PARTITION											B	20	1		1.20									1.20																							
17	REC - SE RMS 136,134 PARTITION											C	20	1		1.20									1.20	Main Lugs Only: -																						
19	LTG - LOBBY / FRONT LOBBY											A	20	1		0.90									0.90	Main Ckt Brkr: 200 A																						
21	LTG - FRONT LOBBY											B	20	1		0.90									0.90																							
23	LTG - FRONT LOBBY / EMERG											C	20	1		0.90									0.90	Surface Mtd: X																						
25	REC - S RM 143D / METER RM W.											A	20	1		1.20									1.20	Flush Mtd: -																						
27	REC - S RM 143D / METER RM W.											B	20	1		1.20									1.20																							
29	REC - S RM 145,146 FURNITURE											C	20	1		1.20									1.20	Bonded Gnd: -																						
31	REC - S RM 145,146 FURNITURE											A	20	1		1.20									1.20	Isolated Gnd: -																						
33	SPACE											B														200% Neutral: -																						
35	SPACE											C														Feed Thru: -																						
37	SPACE											A														Double Lug: -																						
39	SPACE											B														Top Feed: -																						
41	SPACE											C														Bottom Feed: -																						
2	CAPPED SE RMS 133,131,130											A	20	1		1.20									1.20																							
4	CAPPED SE RMS 133,131,130,132,129											B	20	1		1.20									1.20																							
6	CAPPED SE RMS 133,131,130,132,129											C	20	1		1.20									1.20																							
8	REC - SW 158,157 PARTITION #4											A	20	1		1.20									1.20	Feed Thru Load: NONE																						
10	REC - S RM 145 PARTITION #4											B	20	1		1.20									1.20	Phase A:																						
12	UNKNOWN											C	20	1		1.20									1.20	Phase B:																						
14	REC - N 121 PARTITION #4											A	20	1		1.20									1.20	Phase C:																						
16	REC - N RM 122 PARTITION #8											B	20	1		1.20									1.20	Total Conn.: -																						
18	REC - N RM 121,122 PARTITION #8											C	20	1		1.20									1.20	Load From This Panel:																						
20	UNKNOWN											A	20	1		1.20									1.20	Phase A:											13.50											
22	REC - N RM 122											B	20	1		1.20								1.20	Phase B:											12.30												
24	UNKNOWN OUTDOOR LTG											C	20	1		0.90									0.90	Phase C:											12.00											
26	REC - N 119 / ROOF / LTG / CTRL CKT											A	20	1		1.20	0.60								1.80	Total Conn.: -											37.80											
28	REC - IT CLOSET											B	20	1										1.80	Total Connected Load:																							
30	REC - IT CLOSET											C	20	1										1.80																								
32	SPACE											A														Phase A:											13.50											
34	SPACE											B															Phase B:											12.30										
36	SPACE											C															Phase C:											12.00										
38	SPACE											A															Total Conn.: -											37.80										
40	SPACE											B															Total Feeder Demand Load:																					
42	SPACE											C															Total:											29.75 kVA										
CATEGORY												TOTAL CONN. LOAD (kVA)			DEMAND FACTOR			DEMAND LOAD (kVA)			General Notes:											Avg. Amps/Phase: 83 A																
Receptacles												30.00			50%+10kVA			20.00																														
Lighting												4.20			125%			5.25																														
Kitchen Equipment															NEC 220.56						Keyed Notes:																											
Motors (Largest)															125%																																	
Motors															100%																																	
Heating															NEC 220.60																																	
Cooling															NEC 220.60																																	
Continuous Load												3.60			125%			4.50																														
Non-Continuous Load															100%																																	
															100%																																	
															100%																																	
TOTAL												37.80						29.75																														

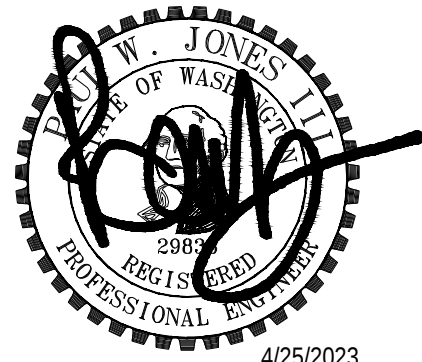
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04/24/2023

Revisions

Registration



Key Plan

Sheet Title

PANEL SCHEDULE
AND MECHANICAL
EQUIPMENT
SCHEDULE

Scale:

CEI Project No: 210094

Date: 04/24/2023

Designed: CEI

Drawn: CLB

Checked: PT

Sheet Number

E4.1

MECHANICAL EQUIPMENT SCHEDULE

NOTES:

- 1 COMBINATION STARTER
- 2 MANUAL STARTER
- 3 FUSED DISCONNECT SWITCH
- 4 NON-FUSED DISCONNECT SWITCH
- 5 DIRECT CONNECTION
- 6 CORD AND PLUG
- 7 NEMA 5-15P
- 8 NEMA 6-15P
- 9 INTEGRAL INPUT POWER TERM. BOARD
- 10 PROVIDE HACR BREAKER PER MFR.
- 11 VARIABLE FREQUENCY DRIVE

- A. FURNISHED AND INSTALLED BY OTHERS
B. FURNISHED BY MANUFACTURER, INSTALLED BY CONTRACTOR.
C. FURNISHED AND INSTALLED BY CONTRACTOR.

MCCPD - MAXIMUM OVERCURRENT PROTECTIVE DEVICE
MCA - MINIMUM CIRCUIT AMPACITY
FLA - FULL LOAD AMPS
W - WATTS
KW - KILOWATTS
N - NORMAL
E - EMERGENCY

UNIT NO.	DESCRIPTION	EQUIPMENT LOAD				MCCPD (A/POLE)	POWER		CONDUIT		WIRES (CU)			STARTER SIZE	DISC. SWITCH	NOTE NO.	REMARKS
		HP	KW	FLA	MCA		TYPE	VOLTS	PHASE	SIZE	NO.	SIZE	GND				
FC-1	FAN COIL UNIT				0.29	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				2.88	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				4.38	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				0.58	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				2.88	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				0.29	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				2.88	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				0.50	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				0.28	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				0.29	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				0.29	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				2.88	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				0.28	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				0.28	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				0.28	15A/2	N	208	1	1/2"	2	#12	#12			2C	
FC-1	FAN COIL UNIT				2.88	15A/2	N	208	1	1/2"	2	#12	#12			2C	
ERV-1	ENERGY RECOVERY UNIT			25	18.20	35A/2	N	120	1	3/4"	2	#8	#10			3C	NEMA 3R
ERV-2	ENERGY RECOVERY UNIT			25	18.20	35A/2	N	120	1	3/4"	2	#8	#10			3C	NEMA 3R
CU-1A	CONDENSING UNIT				52	80A/3P	N	208	3	1"	3	#4	#8			2C	NEMA 3R
CU-1B	CONDENSING UNIT				48	70A/3P	N	208	3	1"	3	#4	#8			2C	NEMA 3R
DH-1	DUCT HEATER		2.50			20A/3	N	208	3	1/2"	3	#12	#12			3C	
DH-2	DUCT HEATER		2.50			20A/3	N	208	3	1/2"	3	#12	#12			3C	
BS-1	HEAT RECOVERY DEVICE					15A/2	N	208	1	1/2"	2	#12	#12			2C	

Skagit Co Parker Bldg		PANEL SCHEDULE										NEW PANEL: (N) PNL C(1)										210094
Location:		Feed Through:										Source:										
Ckt	Load Description	Phase	Amp	Poles	Notes	Rec.	Ltg.	Kil.	Mtr.	Htg.	Cig.	Cont.	Non.	Total	Specifications							
1	REC - RM 142 KITCHEN	A	20	1	1	1.20								1.20								
3	KITCHEN DISPOSAL	B	20	1	1	1.20		1.20						1.20	Rating (Amps):	225						
5	REC - RM 142 KITCHEN	C	20	1	1	1.20								1.20	Voltage (L-L):	208						
7	CU-1A	A	80	3							6.24			6.24	Phase:	3						
9	-	B	-	-							6.24			6.24	Wire:	4						
11	-	C	-	-							6.24			6.24	Bus Material:	Cu						
13	SPARE C.B.	A	20	1											Int. Rating:	18,000A						
15	SPARE C.B.	B	20	1																		
17	HOT WATER TANK	C	30	2	1							2.50		2.50	Main Lugs Only:	-						
19	-	A	-	-								2.50			Main Ckt Brkr:	225 A						
21	DH-1	B	20	3					0.94					0.94								
23	-	C	-	-					0.94					0.94	Surface Mtd:	X						
25	-	A	-	-					0.94					0.94	Flush Mtd:	-						
27	SPACE	B																				
29	SPACE	C													Bonded Gnd:	-						
31	SPACE	A													Isolated Gnd:	-						
33	SPACE	B													200% Neutral:	-						
35	SPACE	C													Feed Thru:	X						
37	SPACE	A													Double Lug:	-						
39	SPACE	B													Top Feed:	-						
41	SPACE	C													Bottom Feed	-						
2	SPRINKLER AIR COMPR.	A	20	1	1				1.80					1.80								
4	REC,LTG,FAN - ELEC. RM	B	20	1	1	1.20								1.20								
6	REC - RMS RESTROOM	C	20	1	1	1.20								1.20								
8	REC - RM 142	A	20	1	1	1.20								1.20	Feed Thru Load:	NONE						
10	REC - RM 142 DISHWASHER	B	20	1	1	1.20								1.20	Phase A:							
12	KITCHEN MICROWAVE	C	20	1	1			1.20						1.20	Phase B:							
14	DH-2	A	20	3					0.94					0.94	Phase C:							
16	-	B	-	-					0.94					0.94	Total Conn.:							
18	-	C	-	-					0.94					0.94	Load From This Panel:							
20	RECEPTACLE - ROOF	A			1	0.36								0.36	Phase A:	20.94						
22	CU-1B	B	70	3										5.76	Phase B:	17.48						
24	-	C	-	-										5.76	Phase C:	19.98						
26	-	A	-	-										5.76	Total Conn.:	58.40						
28	SPACE	B													Total Connected Load:							
30	SPACE	C													Phase A:	20.94						
32	SPACE	A													Phase B:	17.48						
34	SPACE	B													Phase C:	19.98						
36	SPACE	C													Total Conn.:	58.40						
38	SPACE	A													Total Feeder Demand Load:							
40	SPACE	B													Total:	54.46 KVA						
42	SPACE	C													Avg. Amps/Phase:	151 A						
CATEGORY		TOTAL CONN. LOAD (KVA)				DEMAND FACTOR				DEMAND LOAD (KVA)				General Notes:								
Receptacles		7.56				50%>10KVA				7.56												
Lighting						125%																
Kitchen Equipment		2.40				NEC 220.56				2.40												
Motors (Largest)		1.80				125%				2.25												
Motors						100%																
Heating		5.64				NEC 220.60																
Cooling		36.00				NEC 220.60				36.00												
Continuous Load		5.00				125%				6.25												
Non-Continuous Load						100%																
						100%																
						100%																
TOTAL		58.40								54.46												